

# KIC 003217264

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003217264-01	OBS	0401.01	29.199007	156.241315	2054.9	5.387	150.7	148.8	0.94	5376	4.66	20.09
003217264-02	OBS	0401.02	160.019532	251.281183	1573.2	5.597	47.0	44.4	0.94	5376	4.40	2.08
003217264-03	OBS	0401.03	55.328863	186.317610	320.3	7.211	16.5	18.5	0.94	5376	2.06	8.57

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003217264-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003217264-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003217264-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

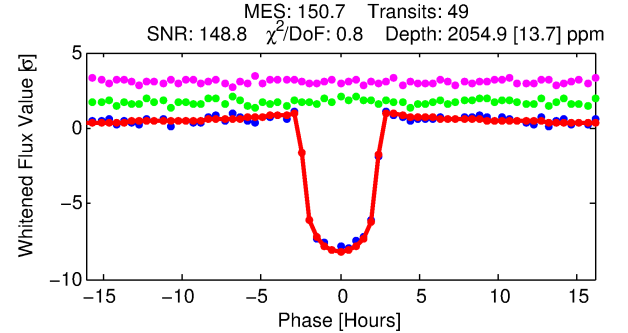
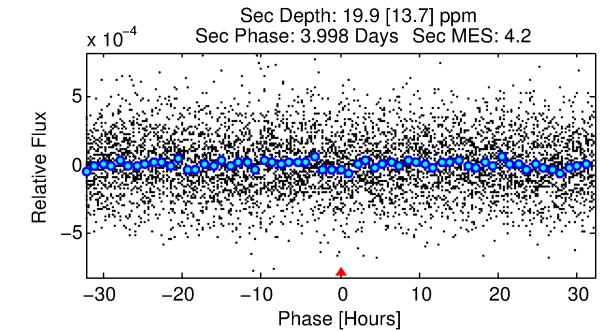
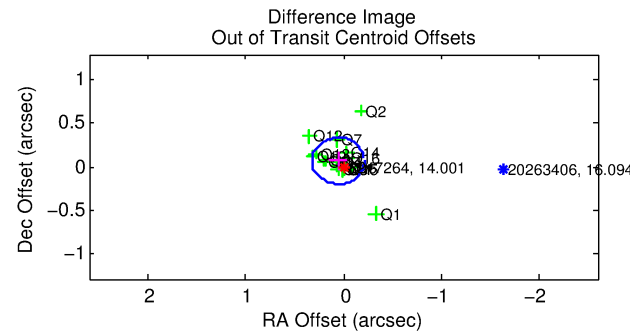
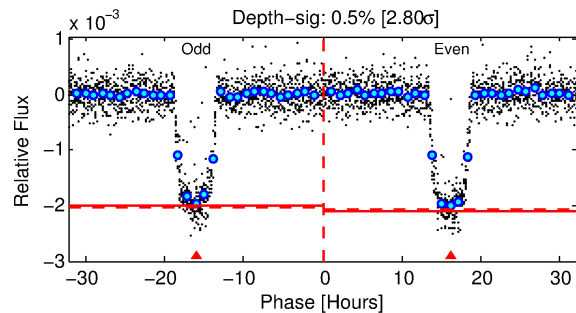
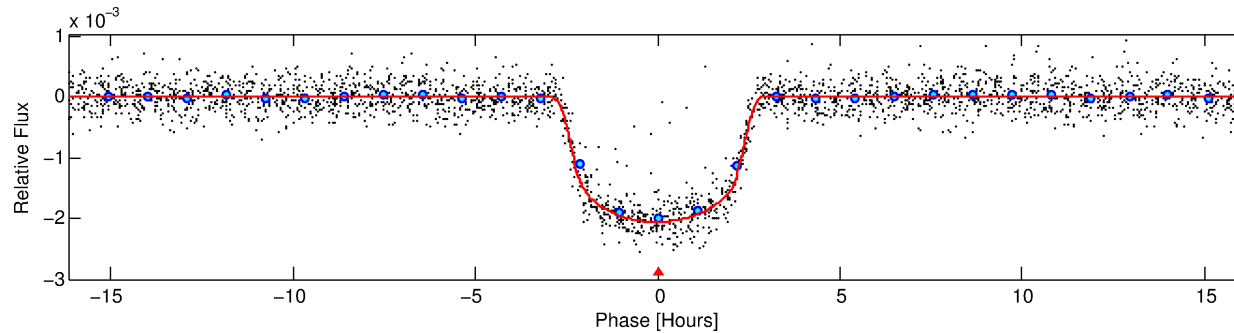
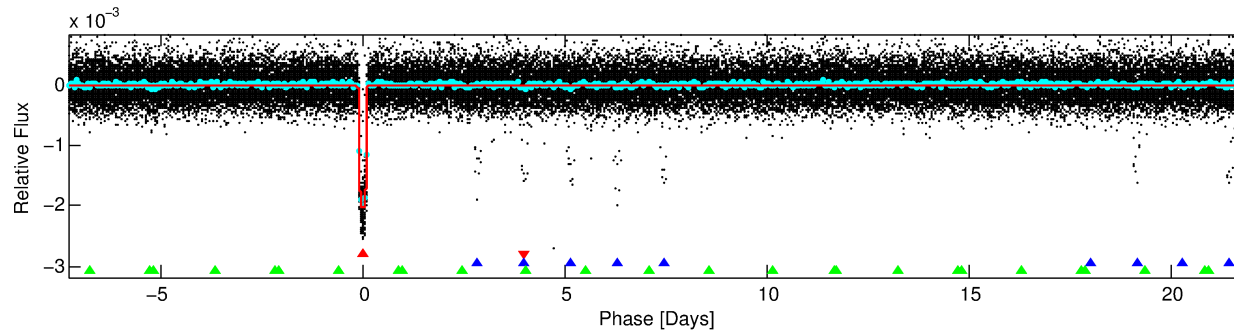
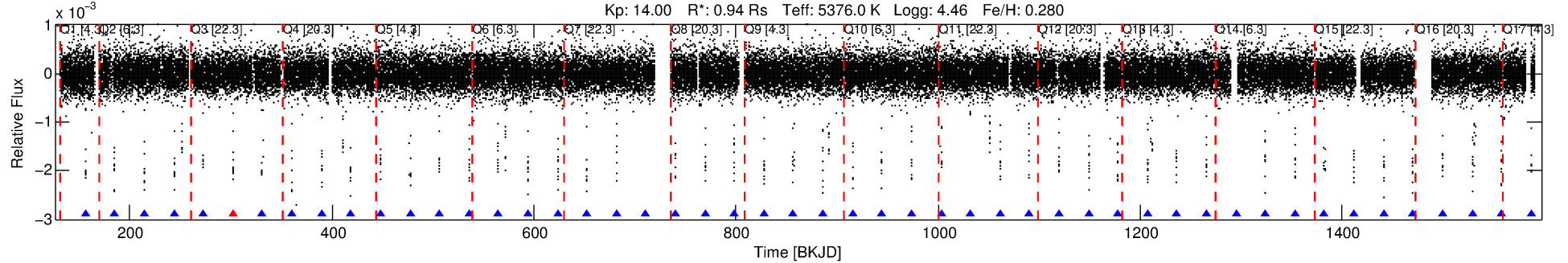
Ephemeris Match Information For 003217264-01

No Significant Match Found

# DV One-Page Summary

KIC: 3217264 Candidate: 1 of 3 Period: 29.199 d  
KOI: K00401.01 Name: Kepler-149b Corr: 0.972

Kp: 14.00 R\*: 0.94 Rs Teff: 5376.0 K Logg: 4.46 Fe/H: 0.280



## DV Fit Results:

Period = 29.19901 [0.00002] d  
Epoch = 156.2413 [0.0007] BKJD  
Rp/R\* = 0.0454 [0.0011]  
a/R\* = 29.80 [2.67]  
b = 0.76 [0.05]  
Seff = 20.09 [3.57]  
Teq = 540 [24] K  
Rp = 4.66 [0.56] Re  
a = 0.1814 [0.0189] AU  
Ag = 16.57 [11.73] [1.33σ]  
Teffp = 1684 [292] K [3.90σ]

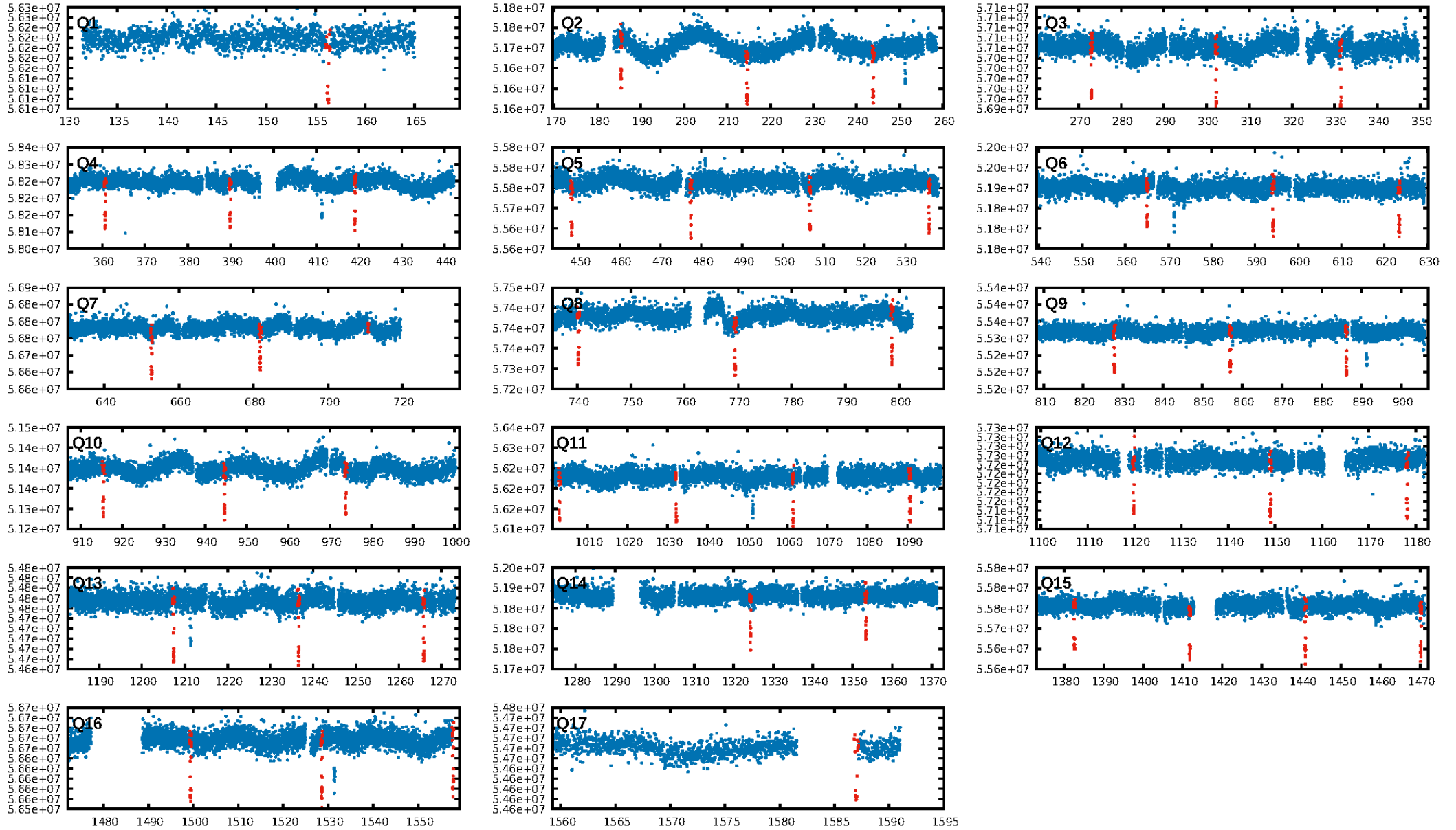
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [69.67σ]  
ModelChiSquare2-sig: 58.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.98 [46/47]  
GhostDiagnostic-chr: 4.621  
Centroid-sig: 16.5%  
Centroid-so: 0.452 arcsec [5.10σ]  
OotOffset-rm: 0.087 arcsec [0.97σ]  
KicOffset-rm: 0.112 arcsec [1.31σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [16/16]

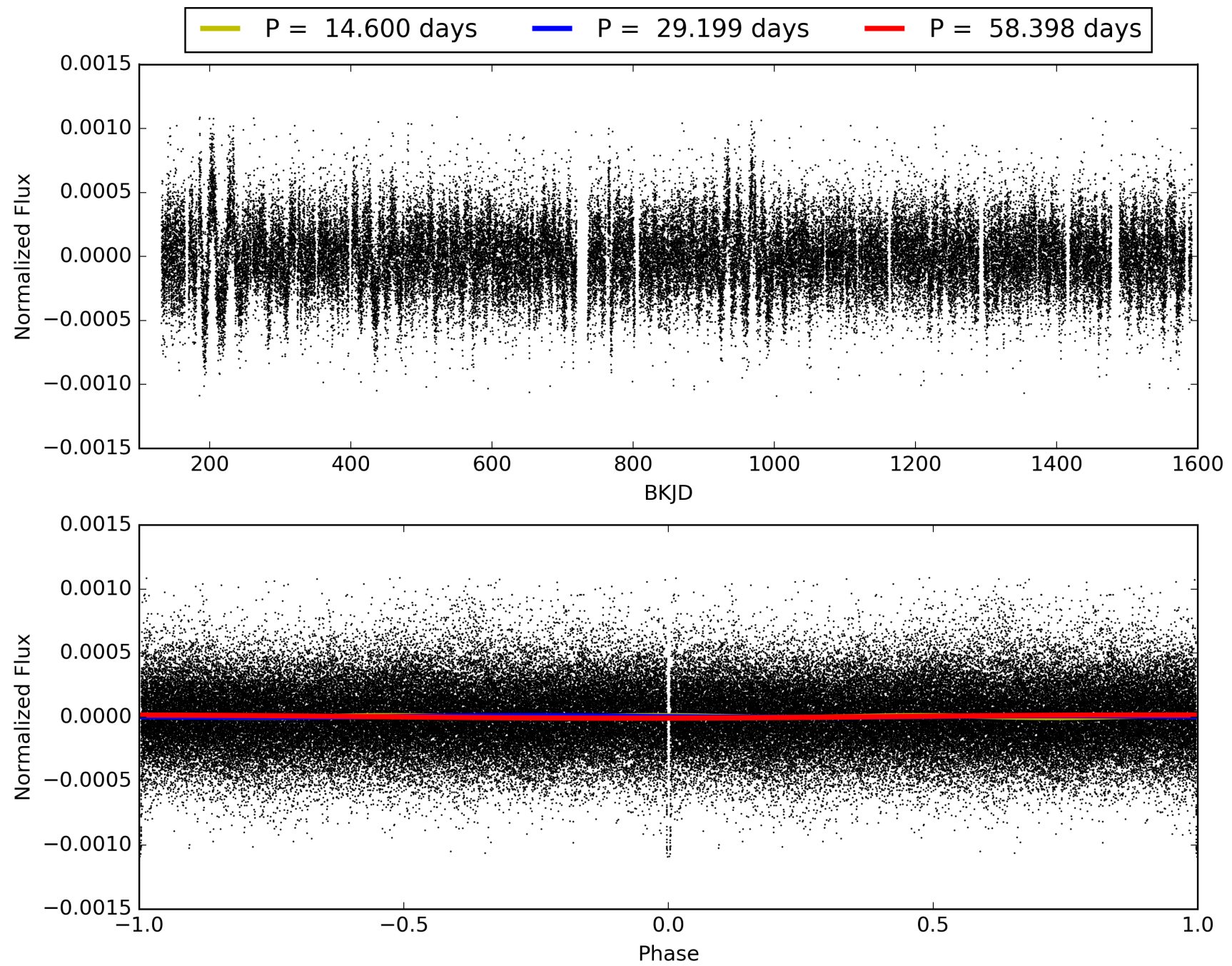
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:55:08 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003217264-01, PDC Light Curves

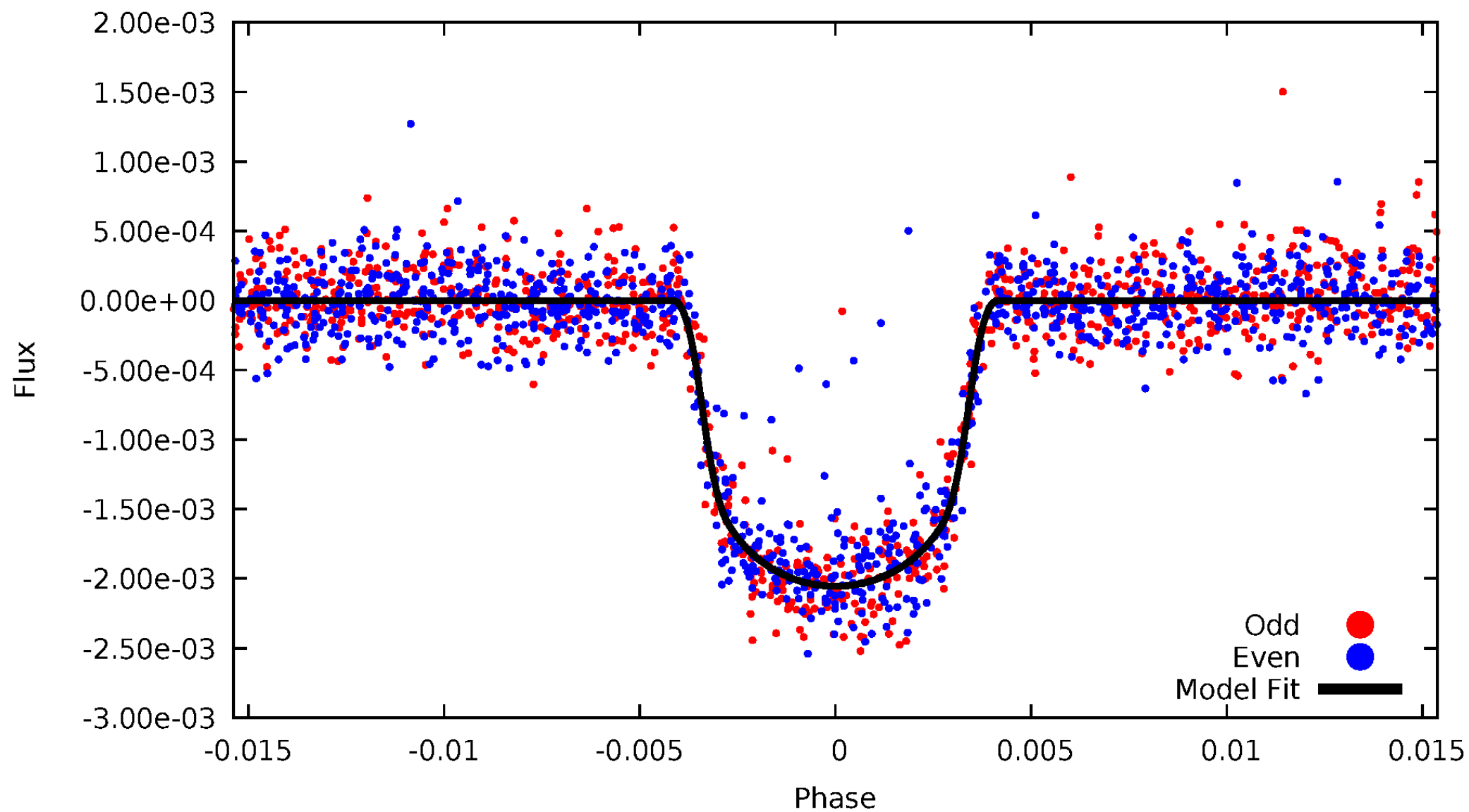


TCE 003217264-01



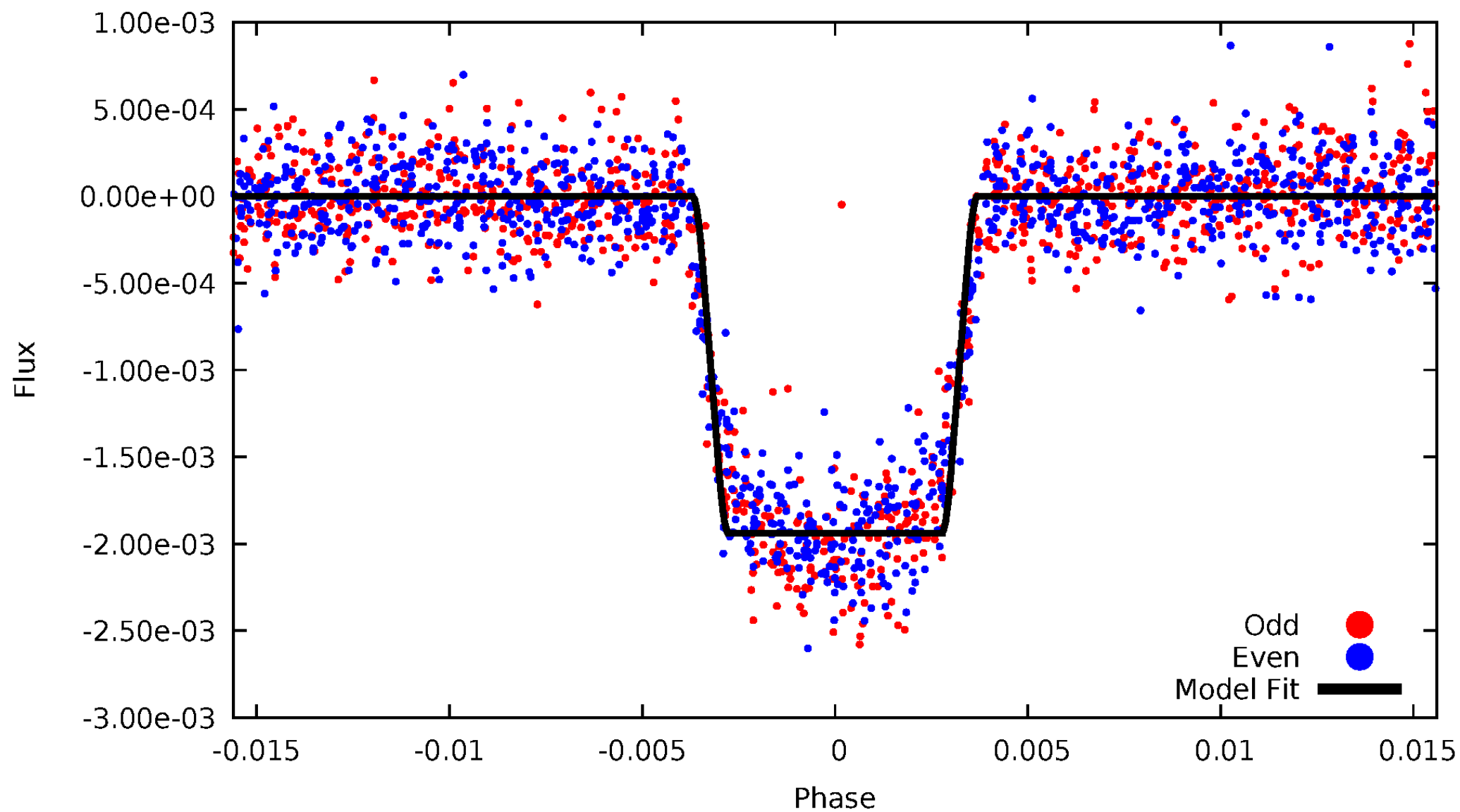
# DV Odd/Even

TCE 003217264-01



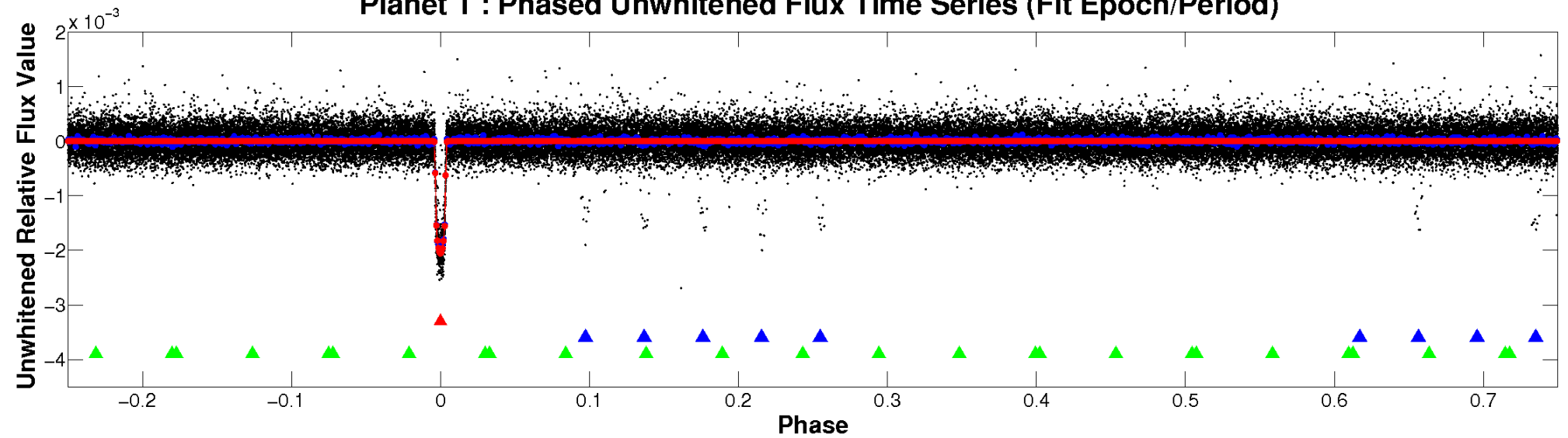
# ALT Odd/Even

TCE 003217264-01

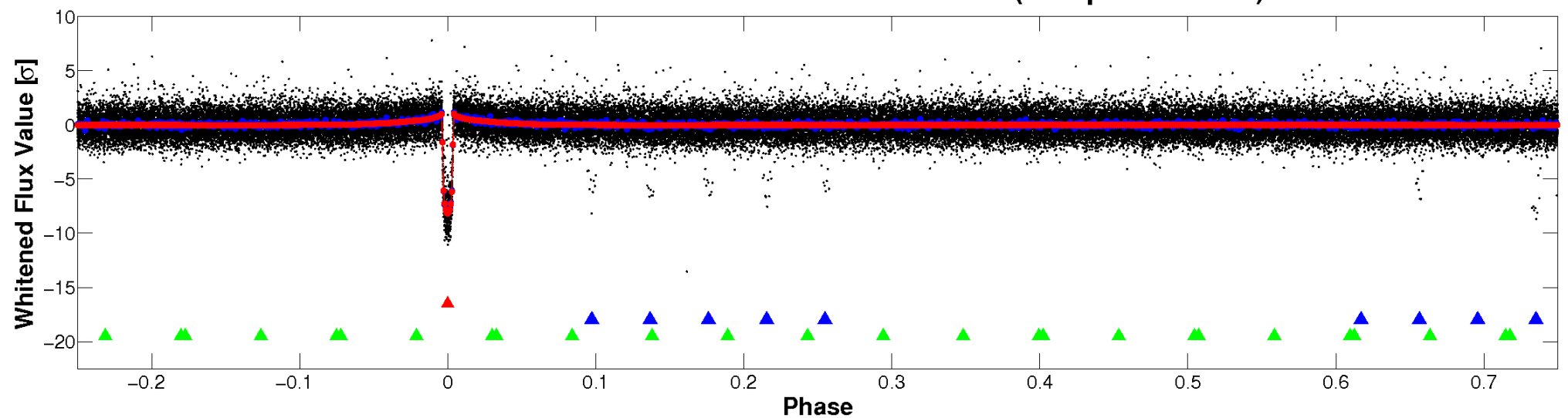


# Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



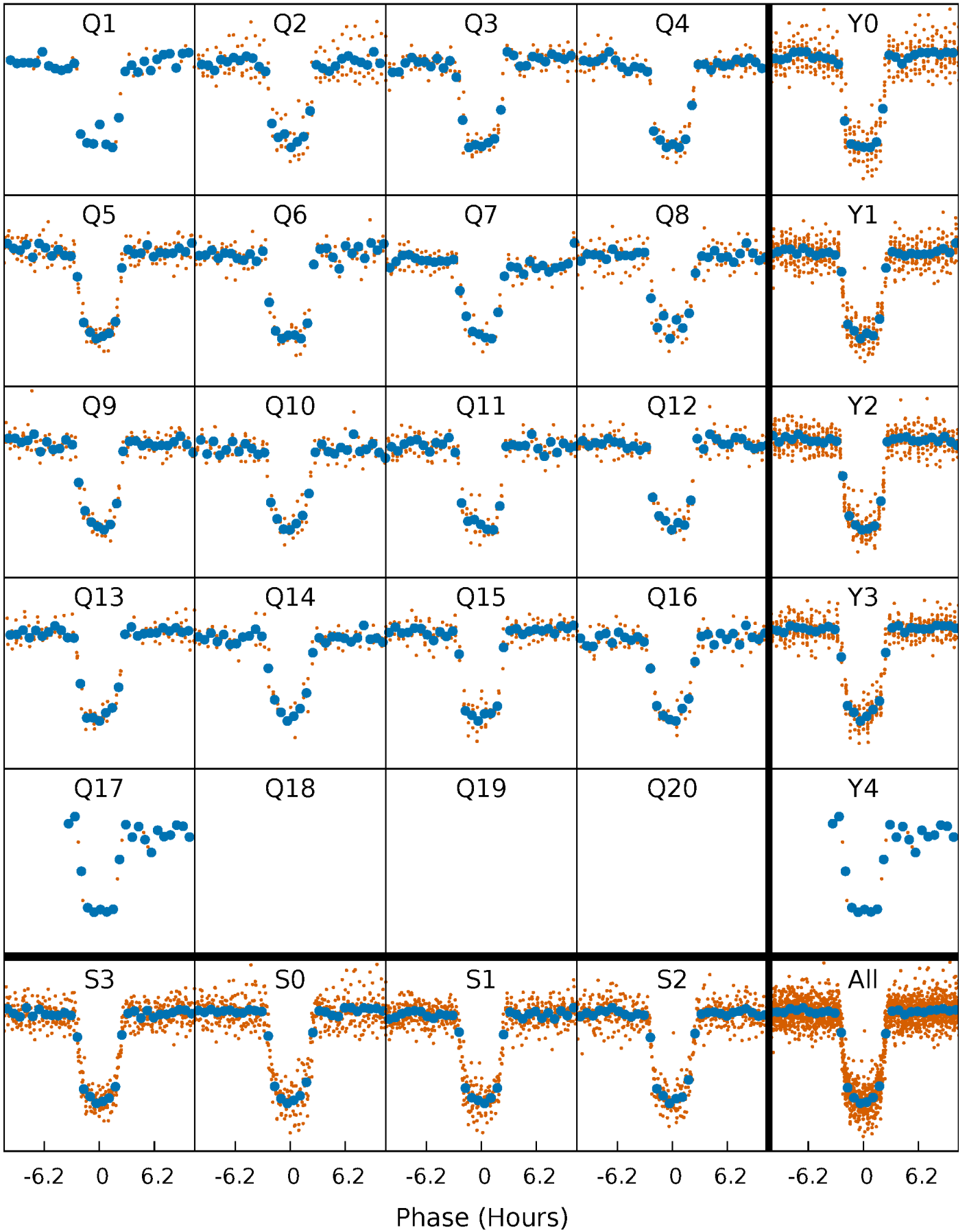
Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

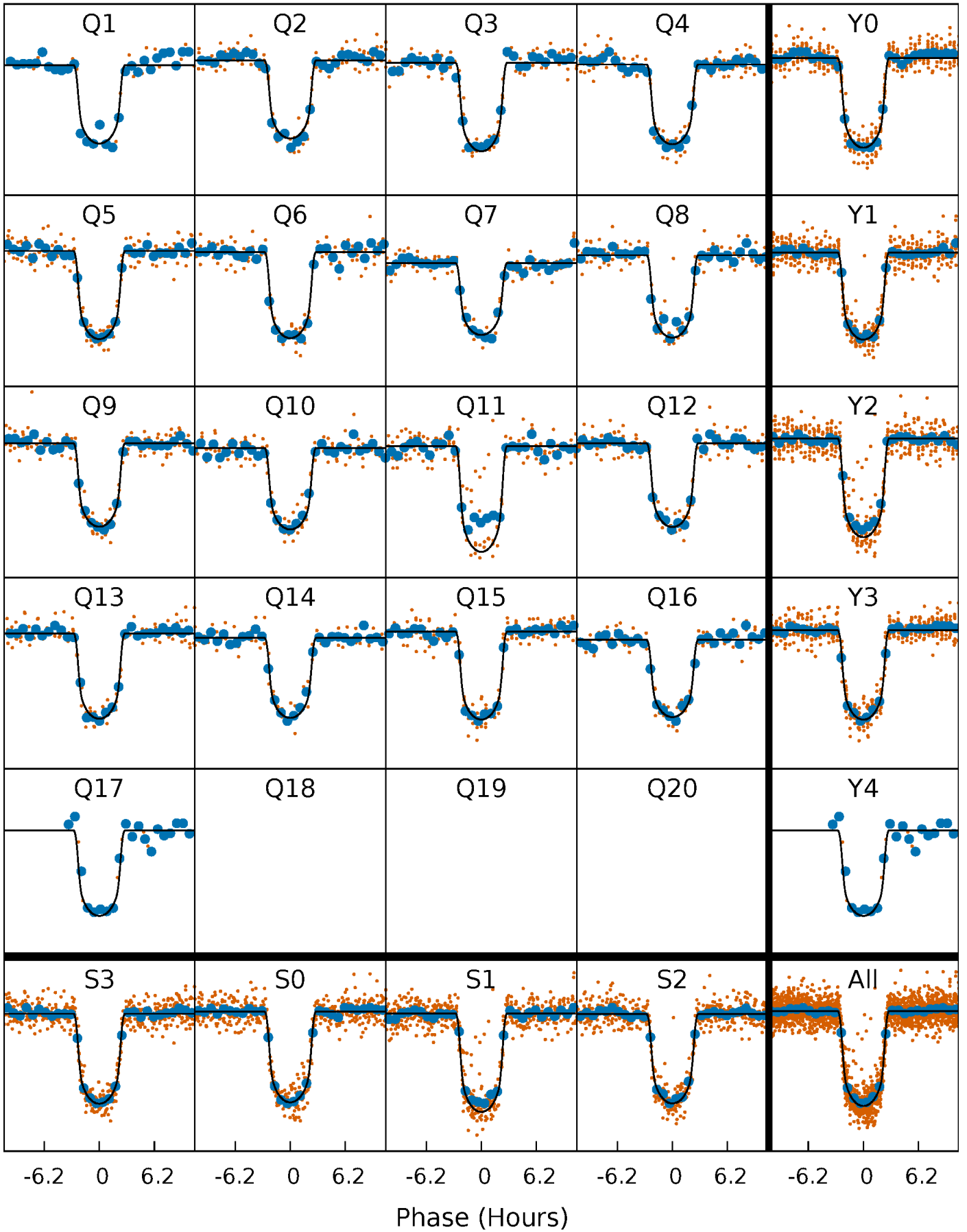
TCE 003217264-01 P= 29.199007 Days  $T_0=156.241315$  (BKJD)





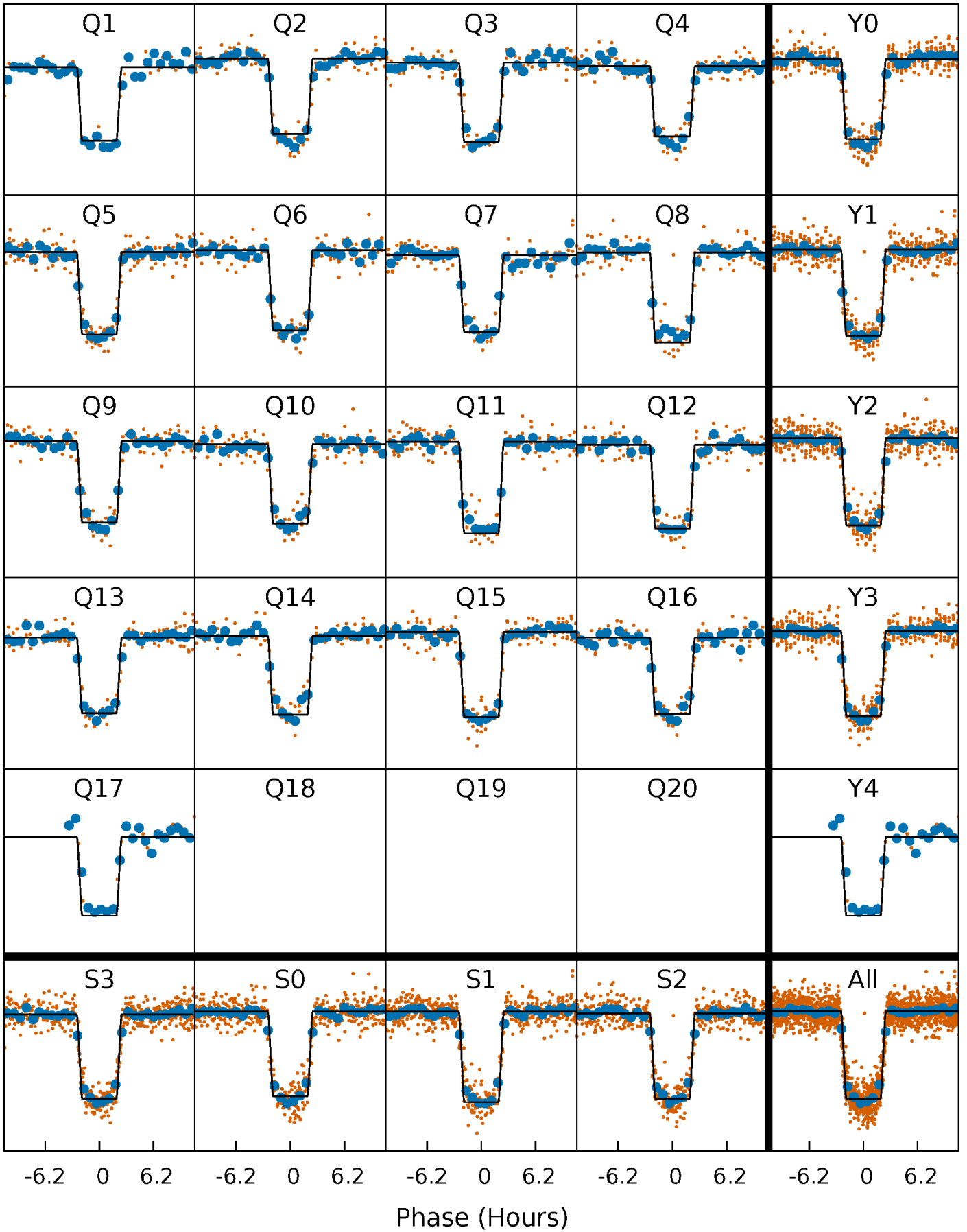
# DV Quarter-Phased Transit Curves

TCE 003217264-01 P= 29.199007 Days  $T_0=156.241315$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

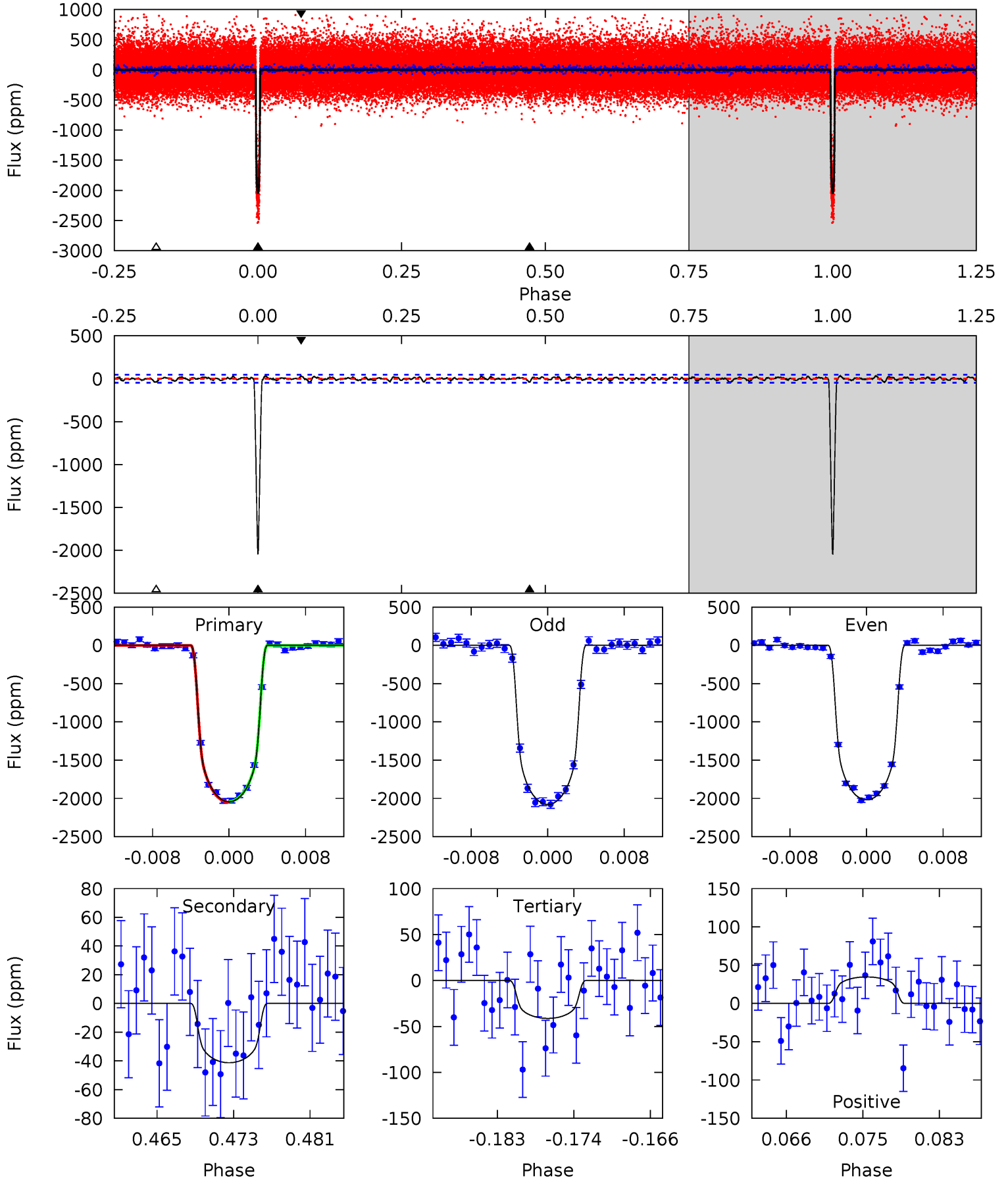
TCE 003217264-01 P= 29.199012 Days  $T_0=156.241181$  (BKJD)



# DV Model-Shift Uniqueness Test

003217264-01, P = 29.199007 Days, E = 127.042308 Days

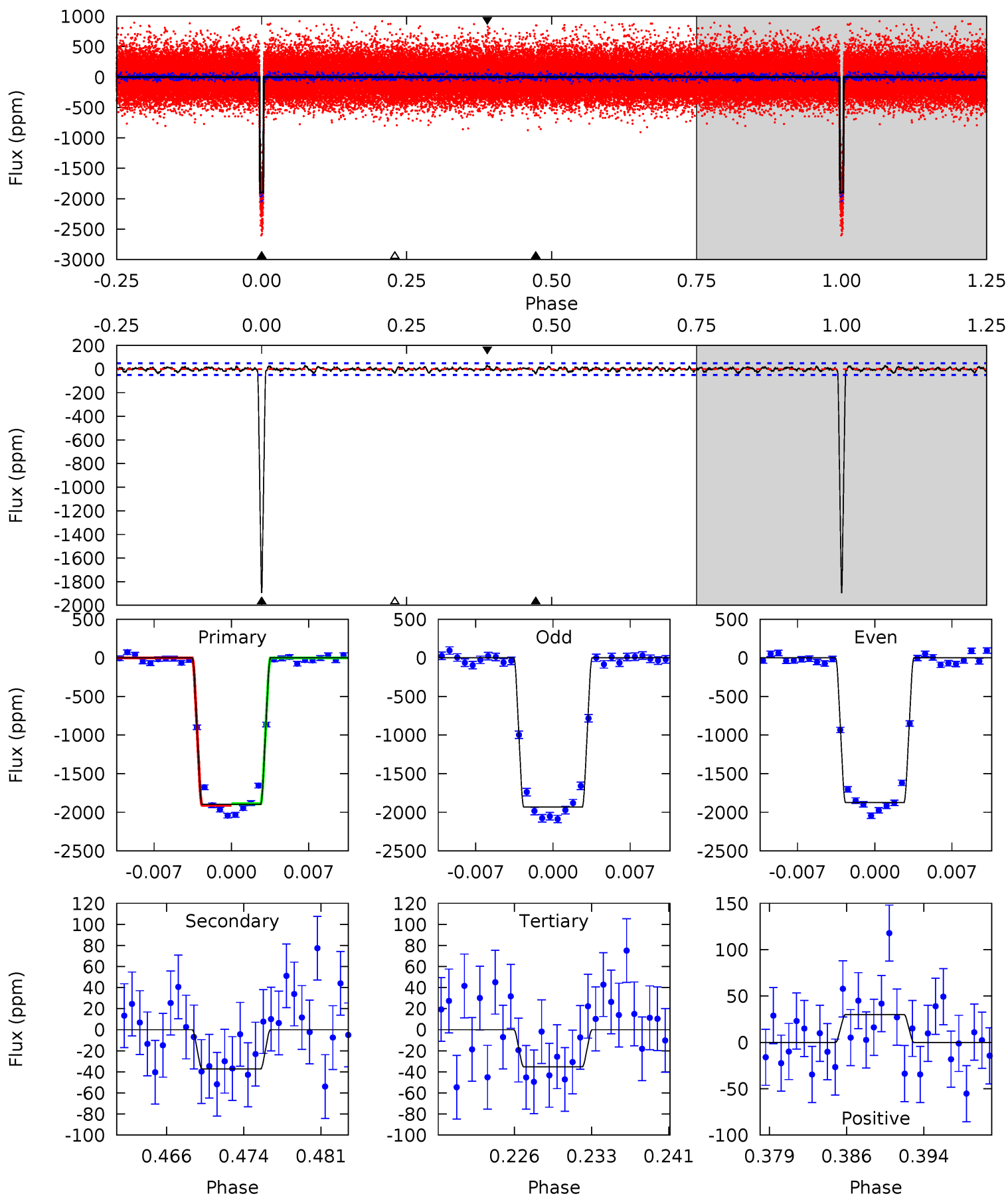
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
217.7	4.40	4.40	3.69	5.06	2.64	1.26	213.3	214.0	0.00	0.71	3.17	0.98	0.02	0.58



# Alt Model-Shift Uniqueness Test

003217264-01, P = 29.199012 Days, E = 127.042169 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
193.9	3.81	3.59	3.07	5.09	2.68	1.05	190.3	190.8	0.22	0.74	3.02	1.00	0.02	0.96



### Stellar Parameters For KIC 003217264

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5376^{+107}_{-107}$	$4.462^{+0.060}_{-0.090}$	$0.280^{+0.150}_{-0.150}$	$0.940^{+0.110}_{-0.073}$	$0.934^{+0.045}_{-0.050}$	$1.582^{+0.387}_{-0.410}$
	+2%/-2%	+1%/-2%	+54%/-54%	+12%/-8%	+5%/-5%	+24%/-26%
Source	SPE58	SPE58	SPE58	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003217264-01 / KOI 0401.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-41 \pm 9$	$4.69^{+0.32}_{-0.27}$	$757^{+27}_{-22}$	$2761^{+86}_{-101}$	$33^{+10}_{-8}$
Alt.	$-37 \pm 10$	$4.55^{+0.29}_{-0.25}$	$756^{+28}_{-23}$	$2744^{+98}_{-114}$	$32^{+9}_{-9}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

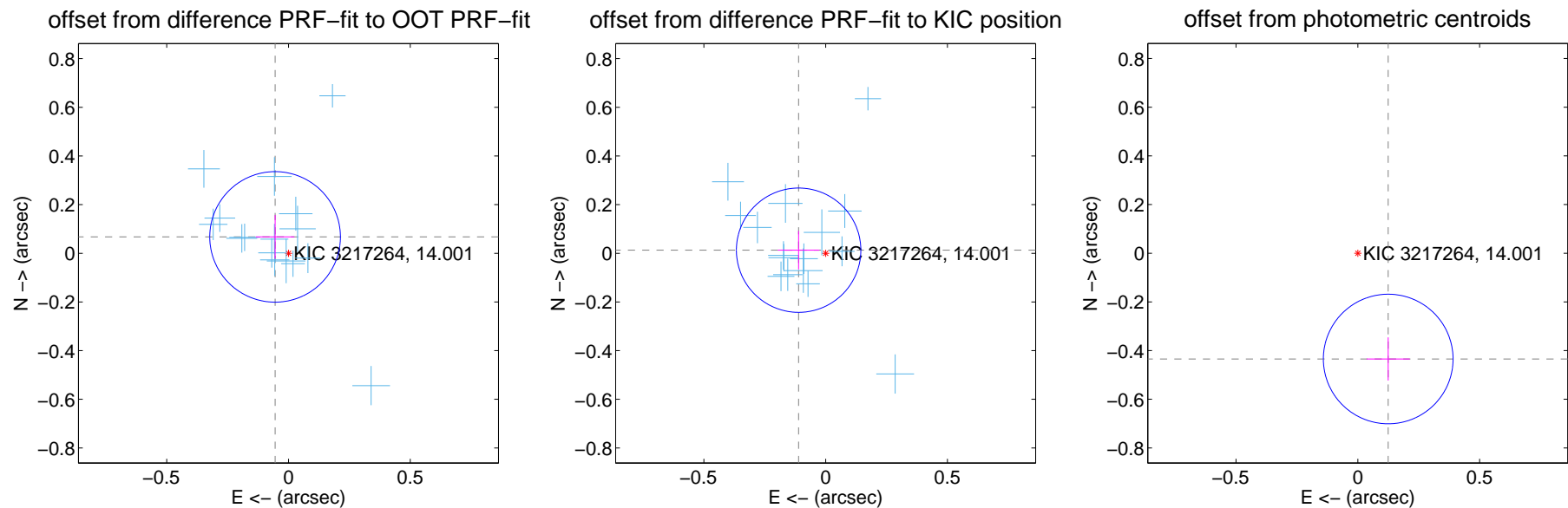
## DV Centroid Data

Supplemental centroid analysis for 003217264-01. Kepler magnitude: 14.00. Transit SNR 148.80

There are 16 quarters with good PRF difference image offsets

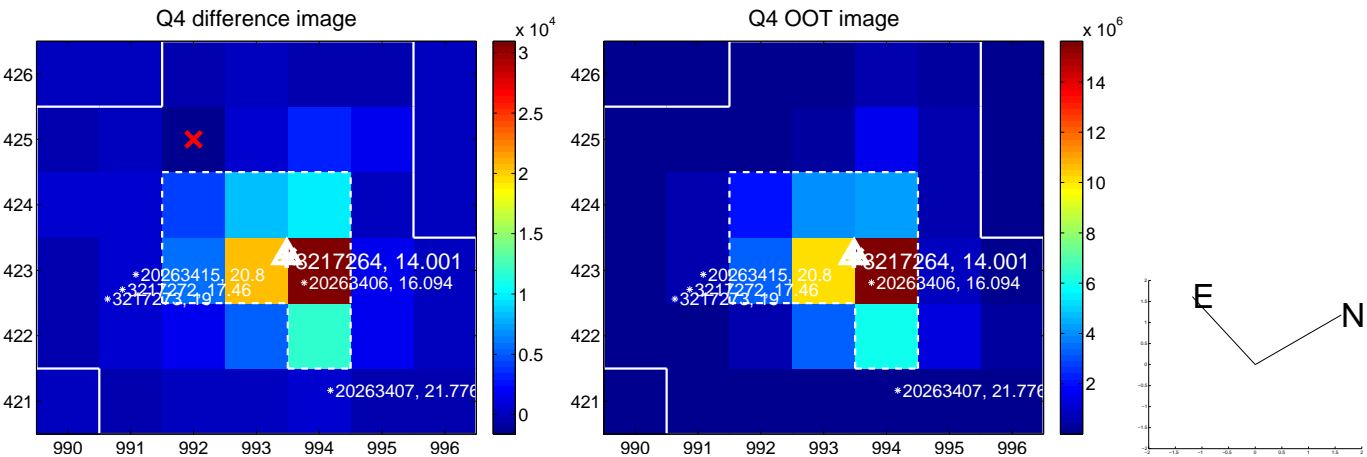
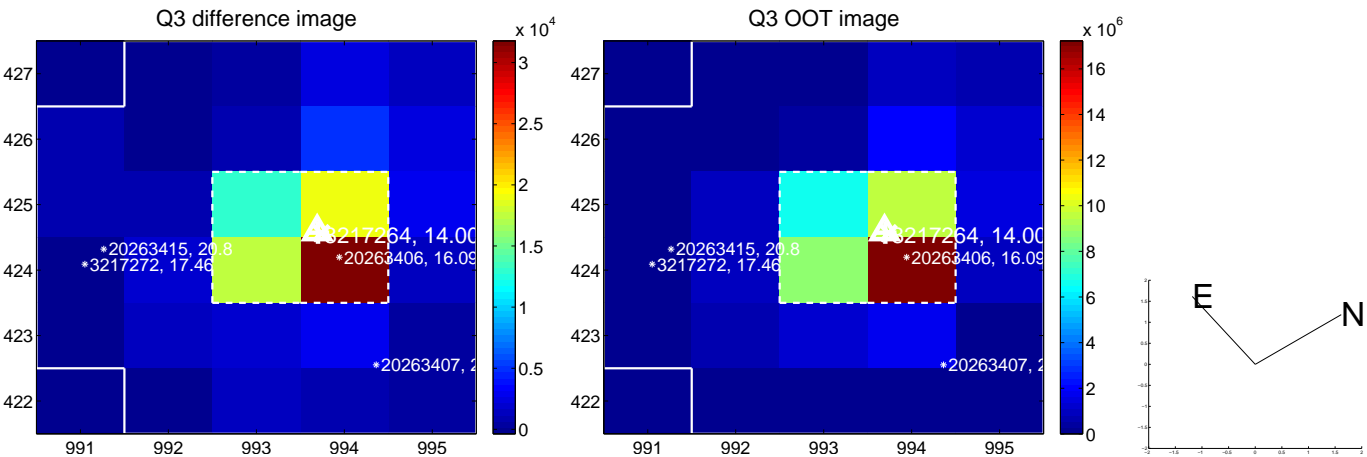
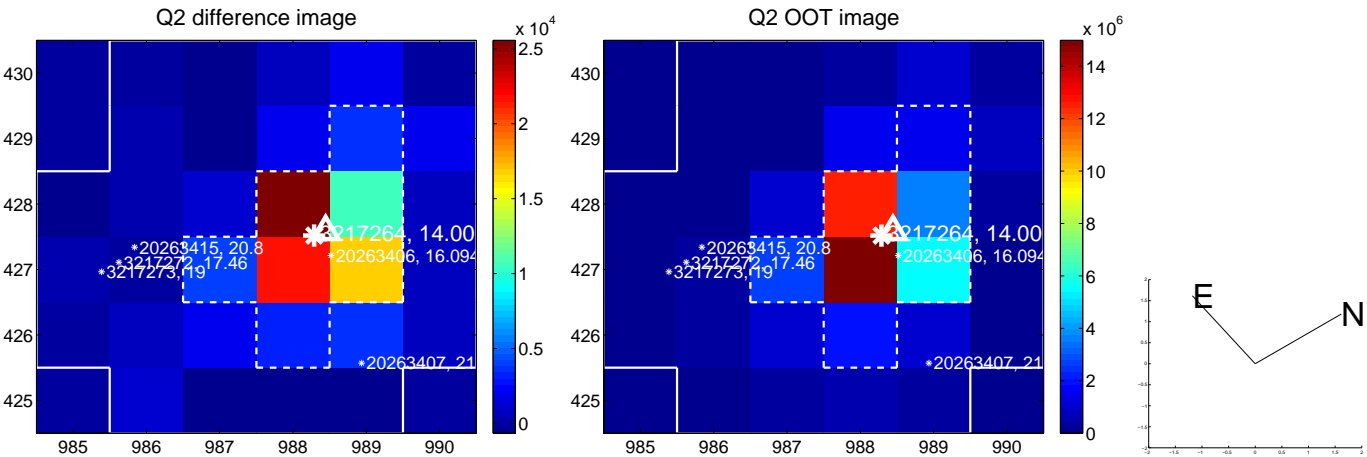
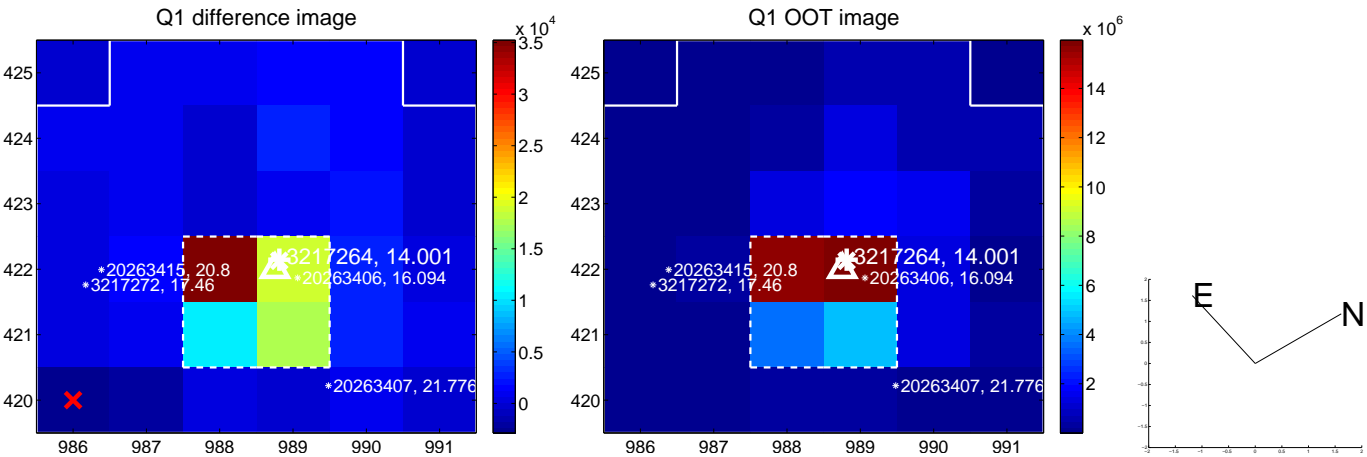
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.087 \pm 0.089$	0.97	$0.055 \pm 0.079$	$0.067 \pm 0.090$
PRF-fit source offset from KIC position	$0.112 \pm 0.085$	1.31	$0.111 \pm 0.085$	$0.013 \pm 0.079$
photometric centroid source offset	$0.45 \pm 0.09$	5.10	$-0.12 \pm 0.09$	$-0.43 \pm 0.09$



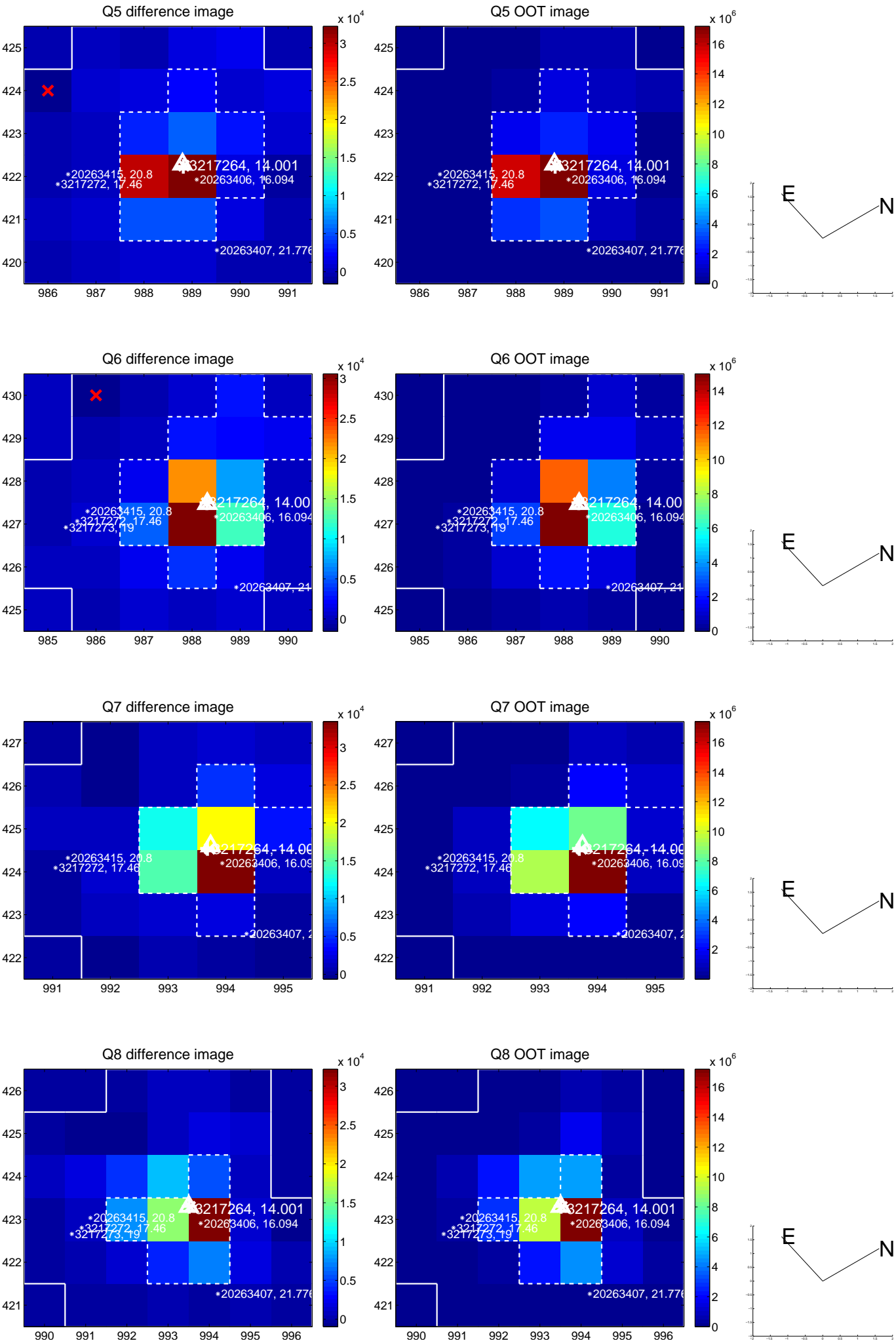
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

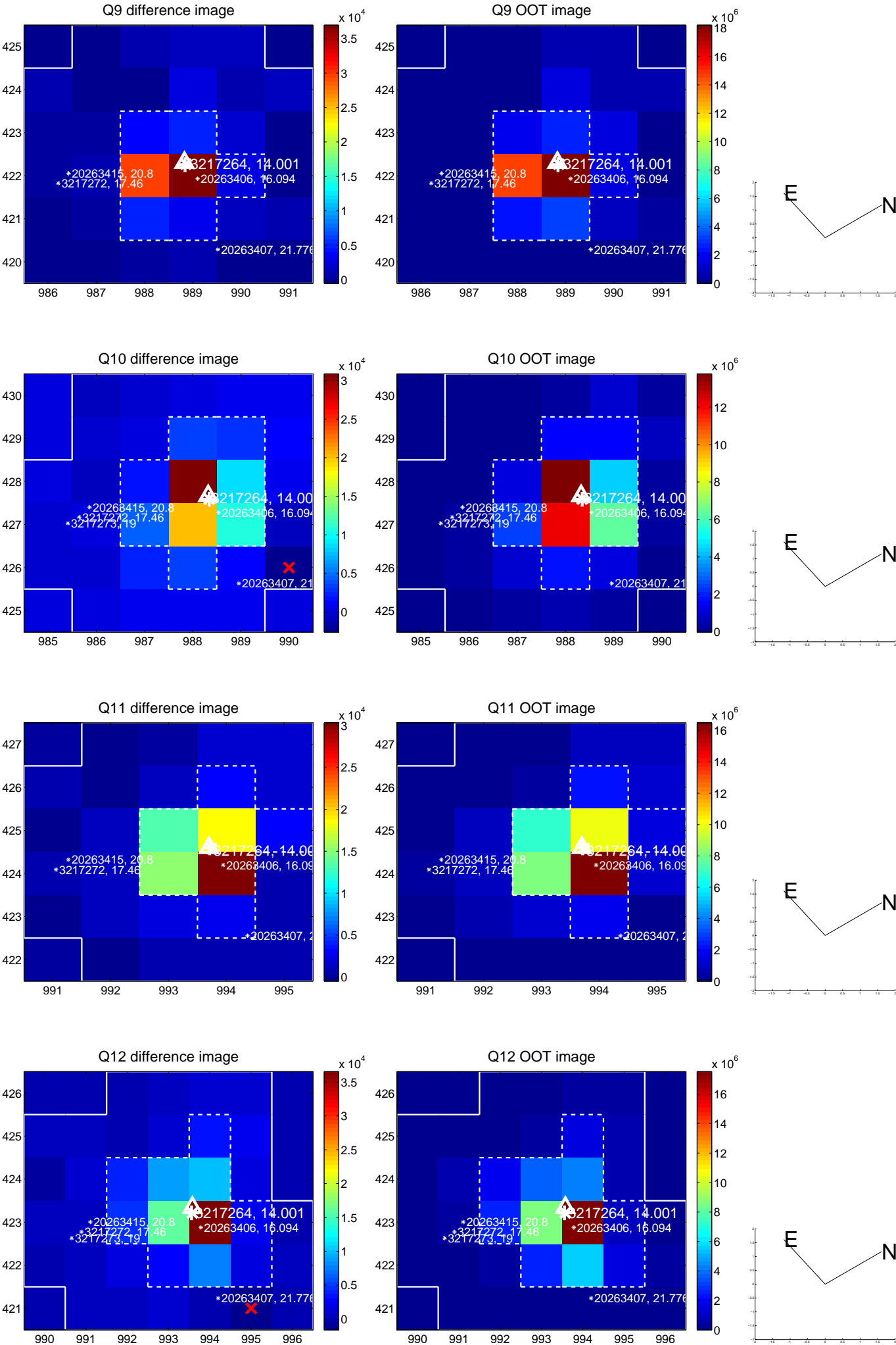




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

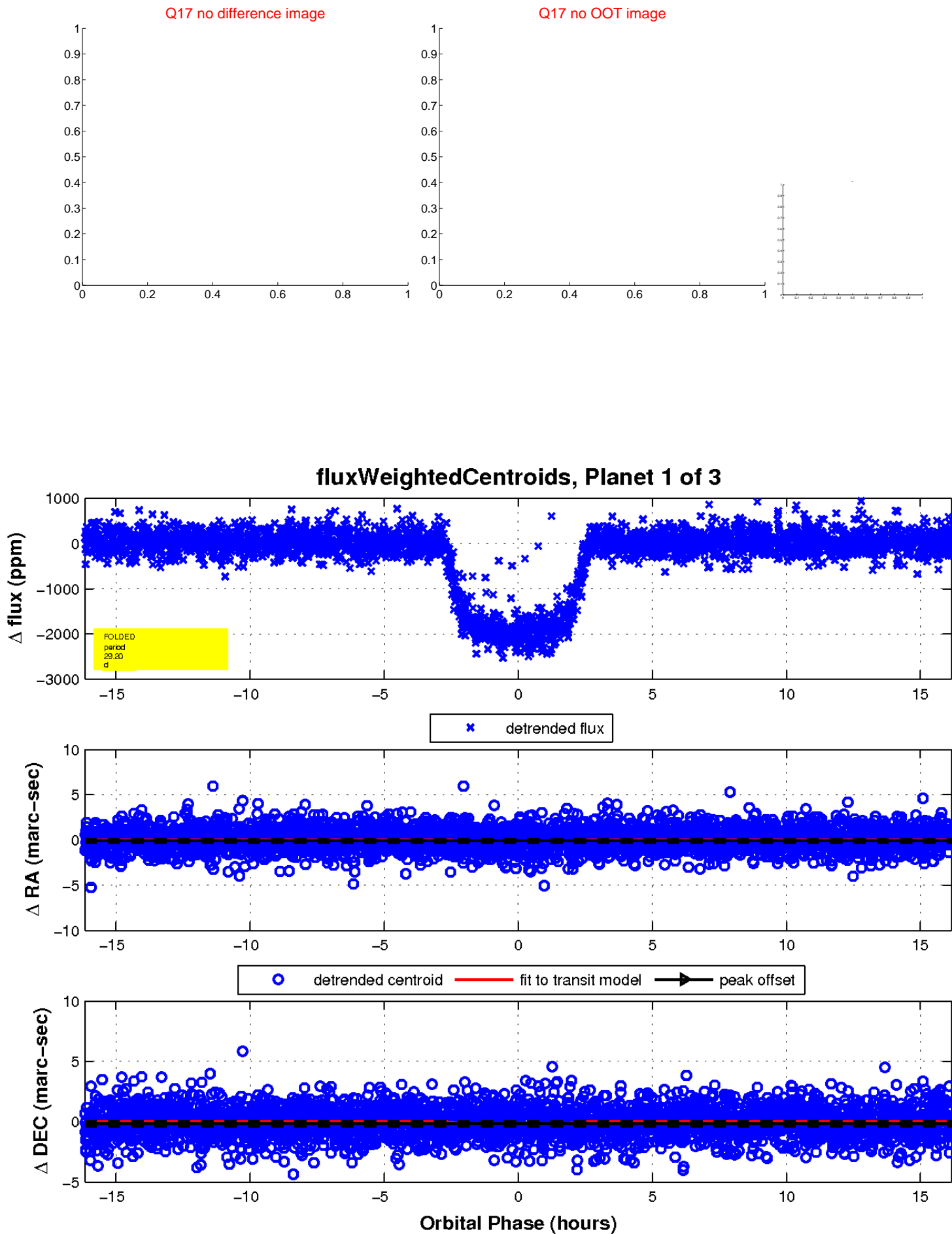


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



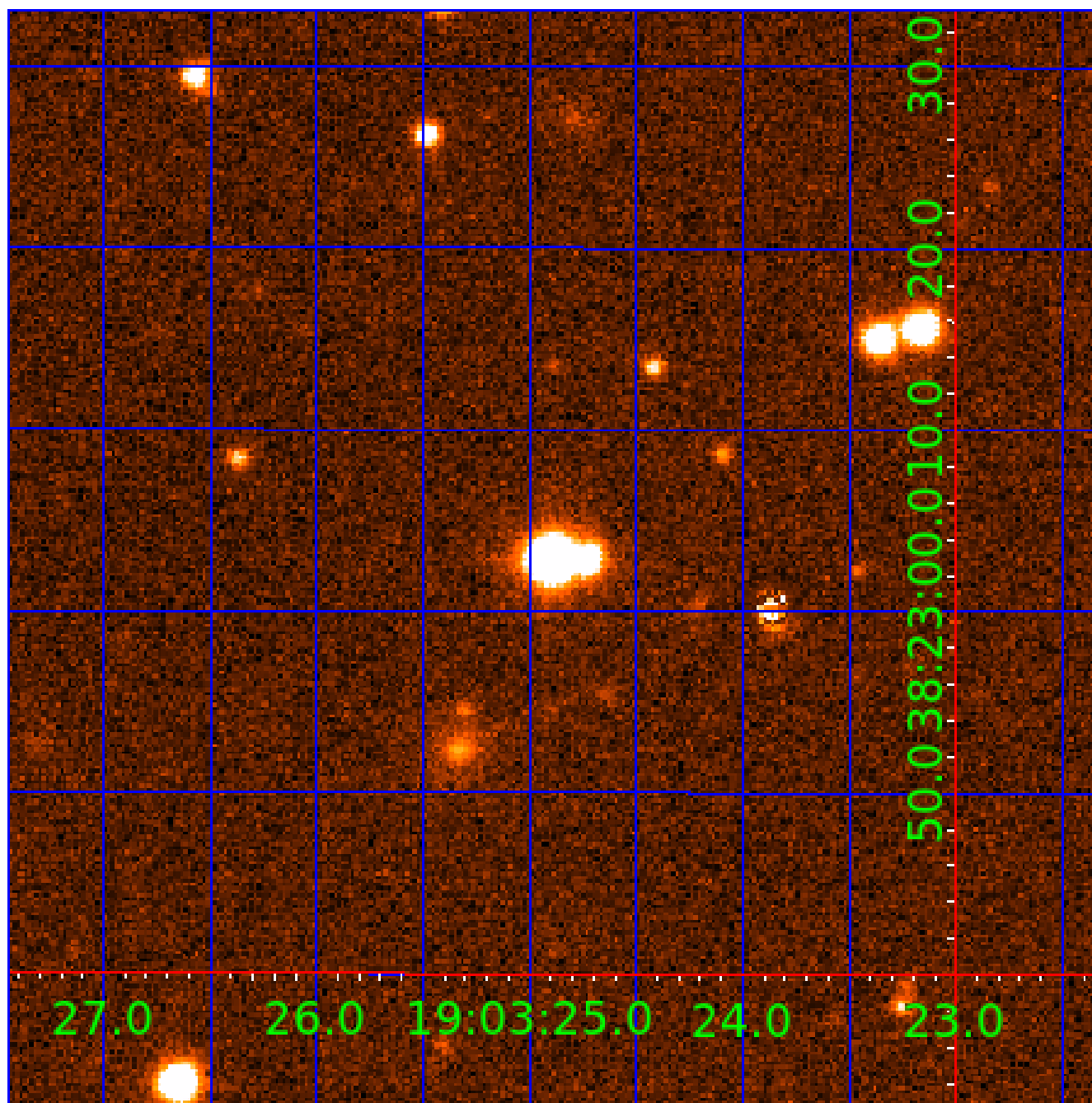


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003217264

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003217264-01	OBS	0401.01	29.199007	156.241315	2054.9	5.387	150.7	148.8	0.94	5376	4.66	20.09
003217264-02	OBS	0401.02	160.019532	251.281183	1573.2	5.597	47.0	44.4	0.94	5376	4.40	2.08
003217264-03	OBS	0401.03	55.328863	186.317610	320.3	7.211	16.5	18.5	0.94	5376	2.06	8.57

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003217264-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003217264-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003217264-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

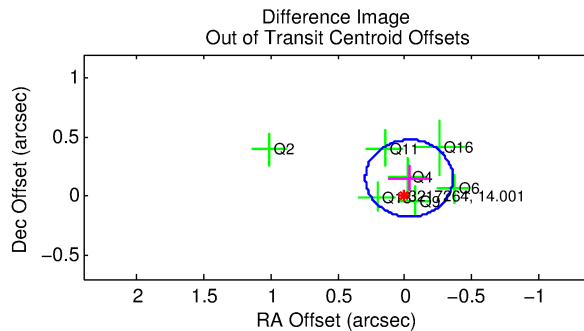
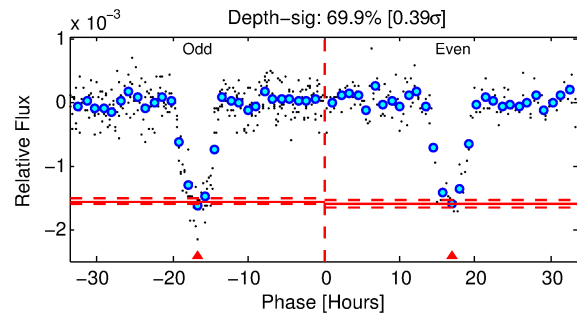
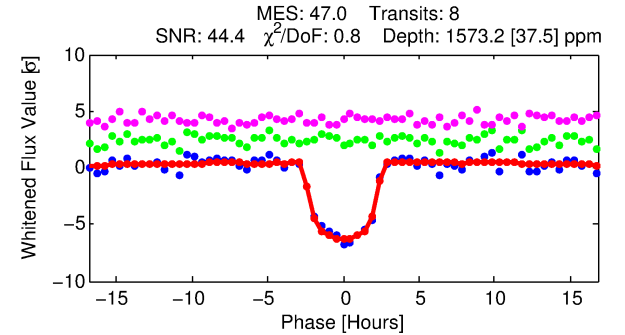
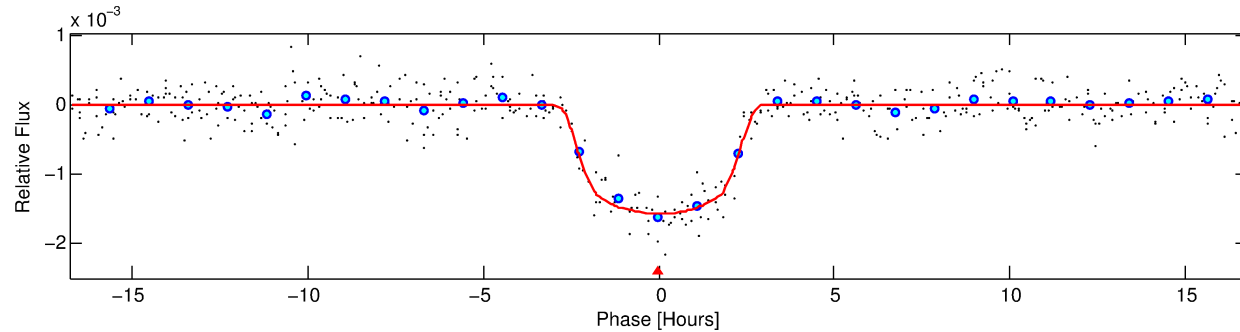
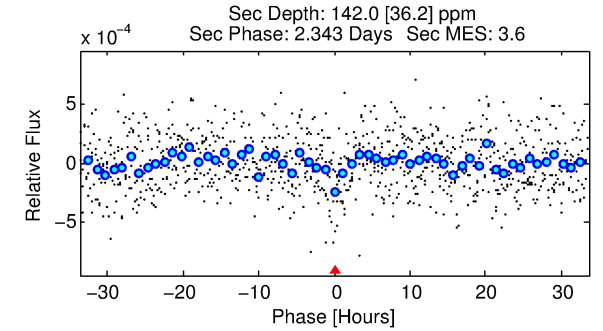
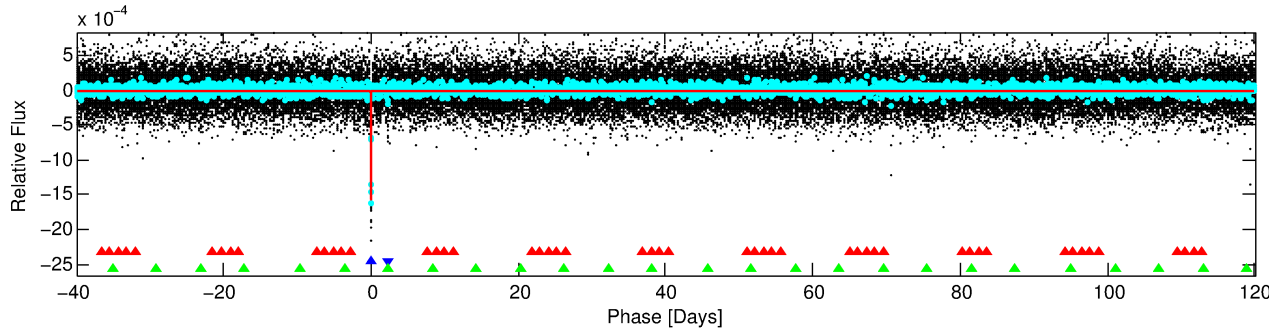
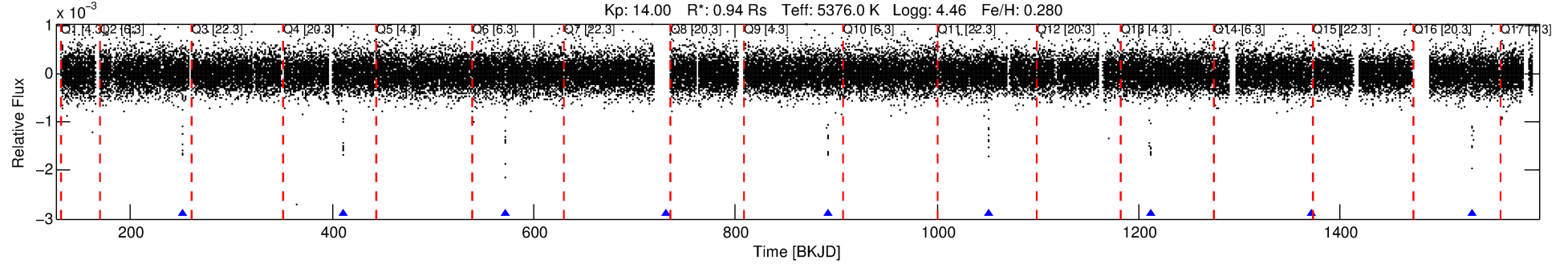
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003217264-02

No Significant Match Found

# DV One-Page Summary

KIC: 3217264 Candidate: 2 of 3 Period: 160.020 d  
KOI: K00401.02 Name: Kepler-149d Corr: 0.956



## DV Fit Results:

Period = 160.01953 [0.00047] d  
Epoch = 251.2812 [0.0024] BKJD  
Rp/R\* = 0.0429 [0.0014]  
a/R\* = 123.70 [14.11]  
b = 0.88 [0.03]  
Seff = 2.08 [0.37]  
Teq = 306 [14] K  
Rp = 4.40 [0.53] Re  
a = 0.5639 [0.0588] AU  
Ag = 1284.61 [394.60] [3.25 $\sigma$ ]  
Teffp = 2834 [195] K [12.95 $\sigma$ ]

## DV Diagnostic Results:

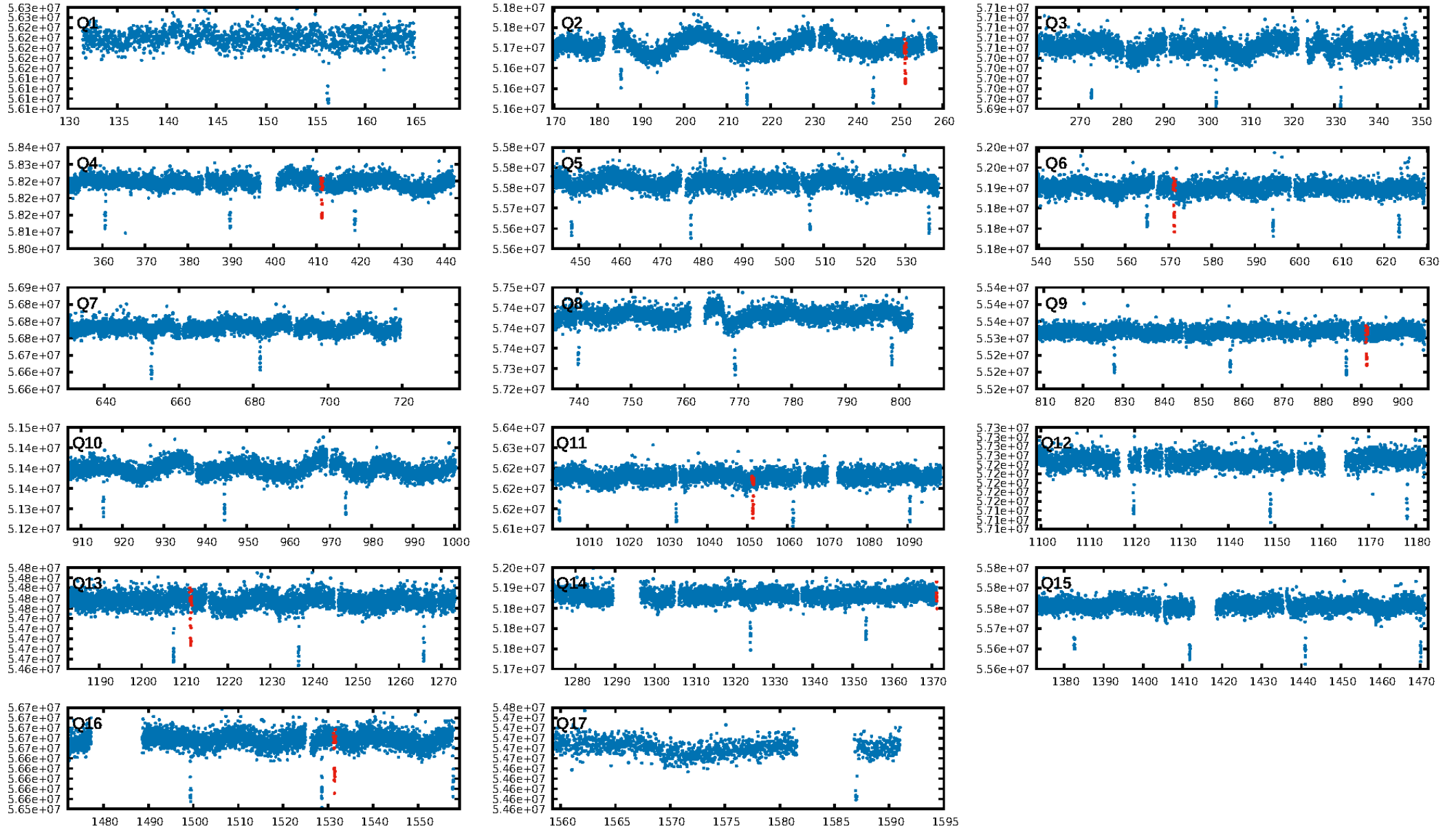
ShortPeriod-sig: 100.0% [275.24 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 74.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 4.275  
Centroid-sig: 30.8%  
Centroid-so: 0.805 arcsec [2.61 $\sigma$ ]  
OotOffset-rm: 0.155 arcsec [1.43 $\sigma$ ]  
KicOffset-rm: 0.124 arcsec [1.08 $\sigma$ ]  
OotOffset-st: 2/1/2/2 [7]  
KicOffset-st: 2/1/2/2 [7]  
DiffImageQuality-fgm: 1.00 [7/7]  
DiffImageOverlap-fno: 1.00 [7/7]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:55:16 Z

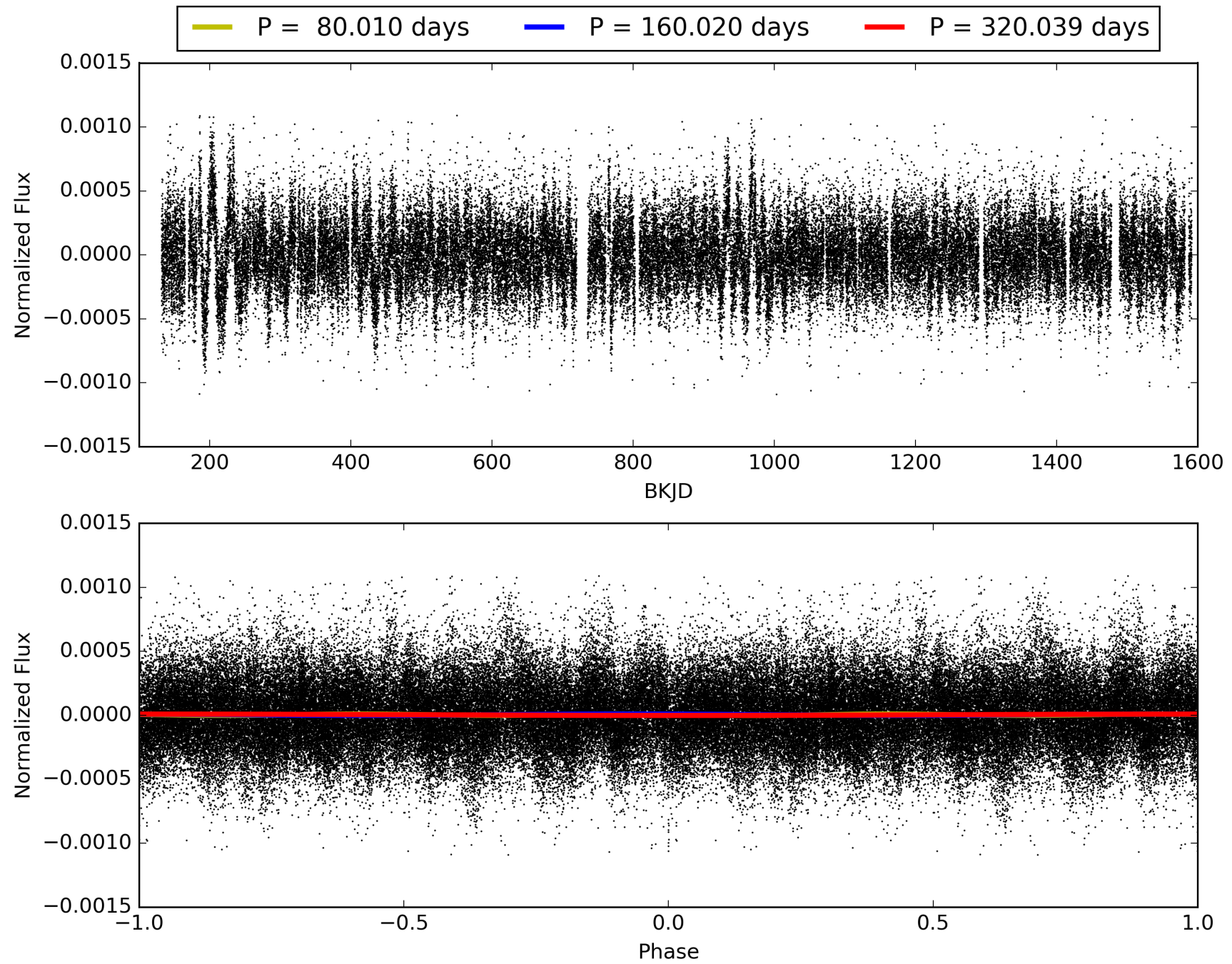
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 003217264-02, PDC Light Curves

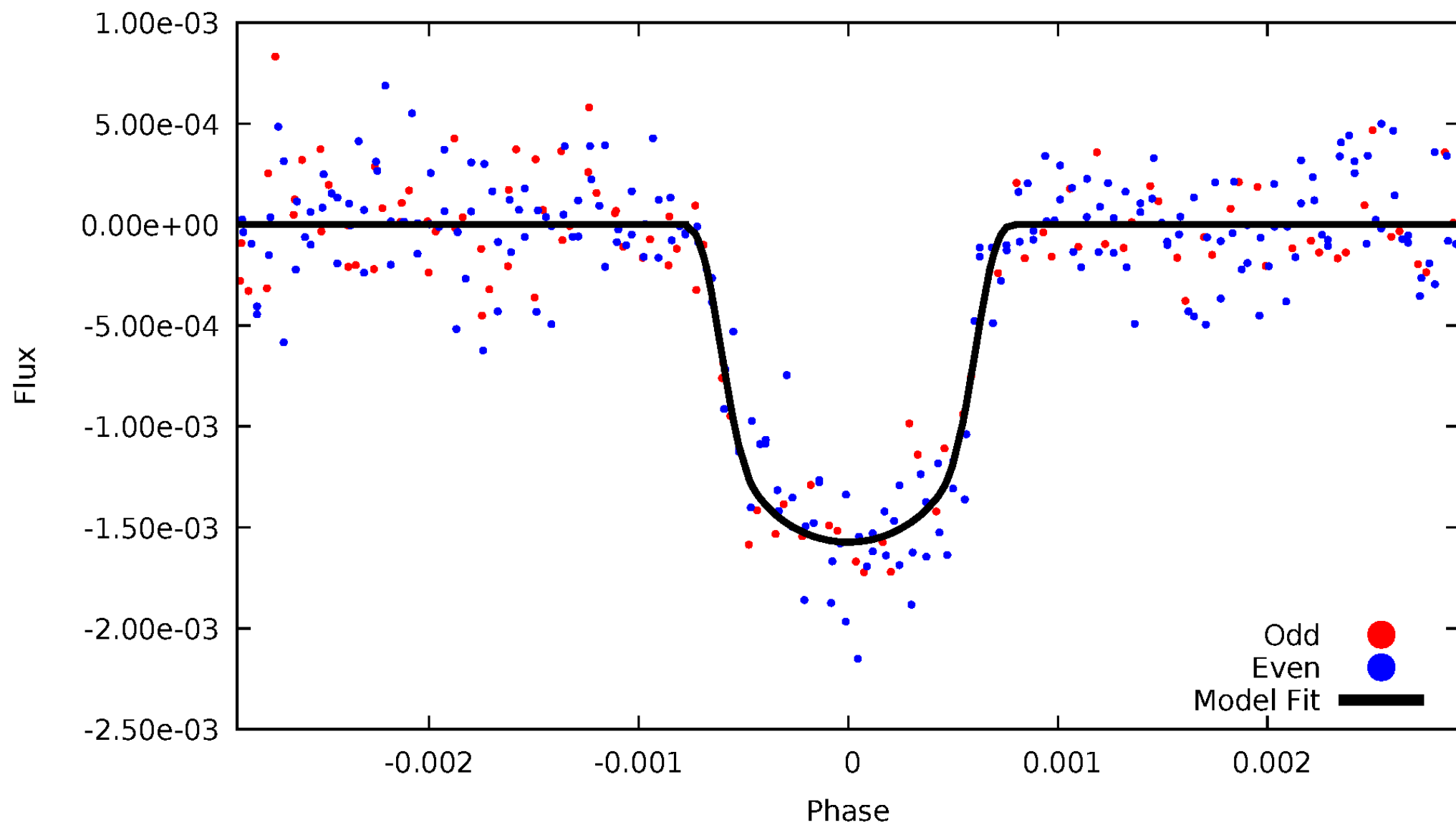


TCE 003217264-02



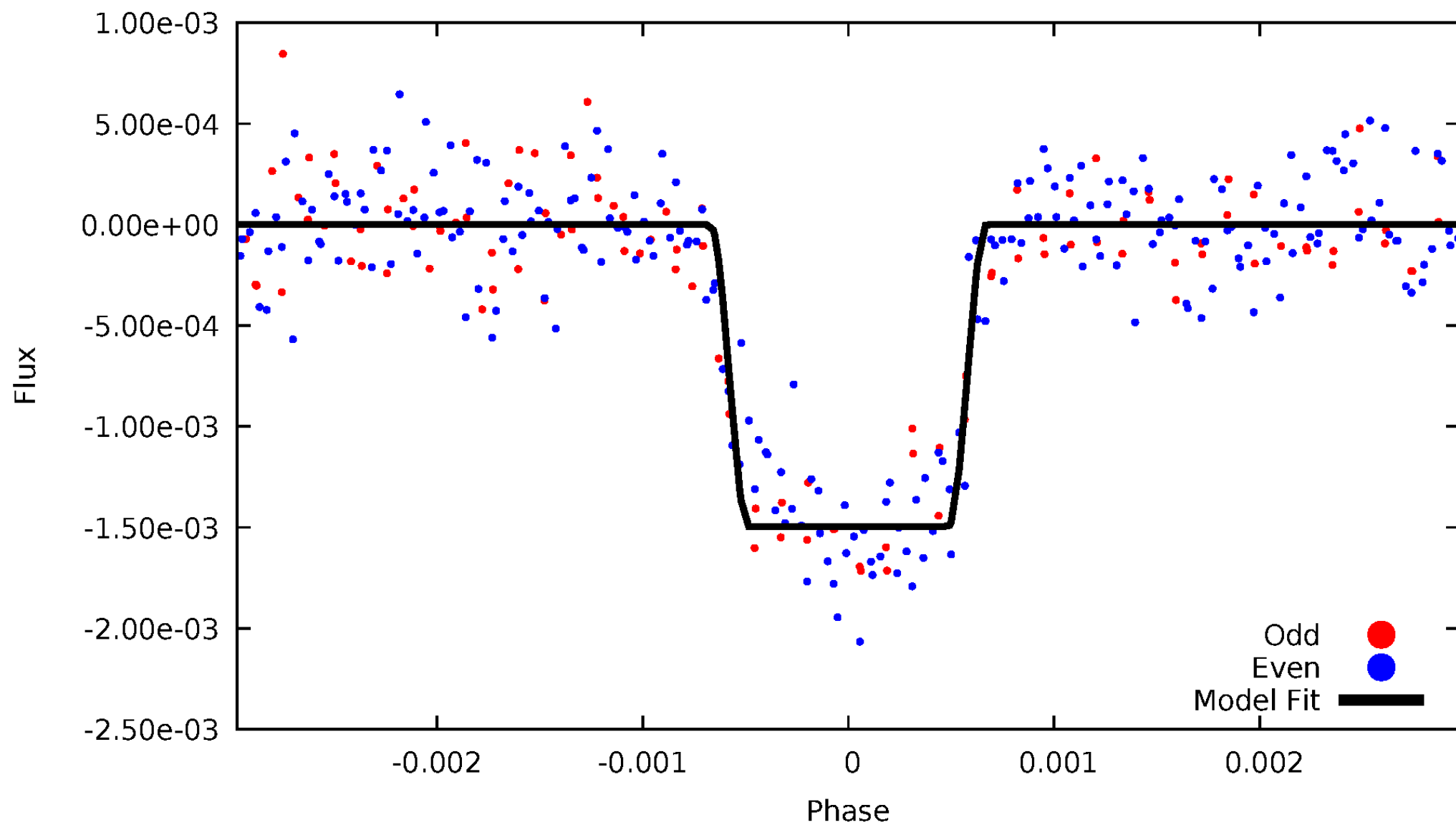
# DV Odd/Even

TCE 003217264-02



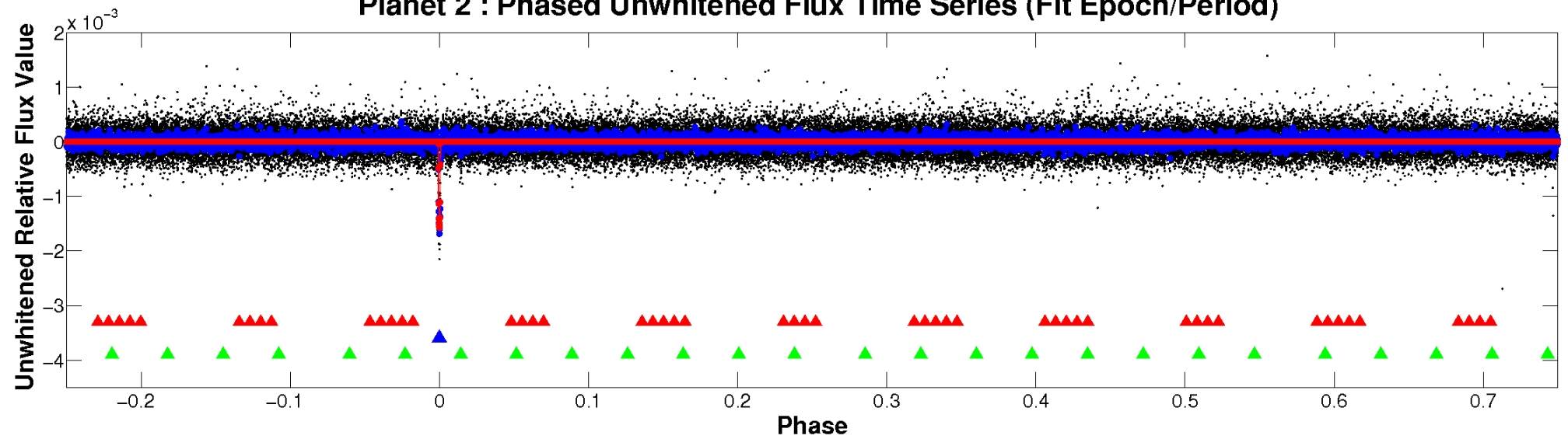
# ALT Odd/Even

TCE 003217264-02

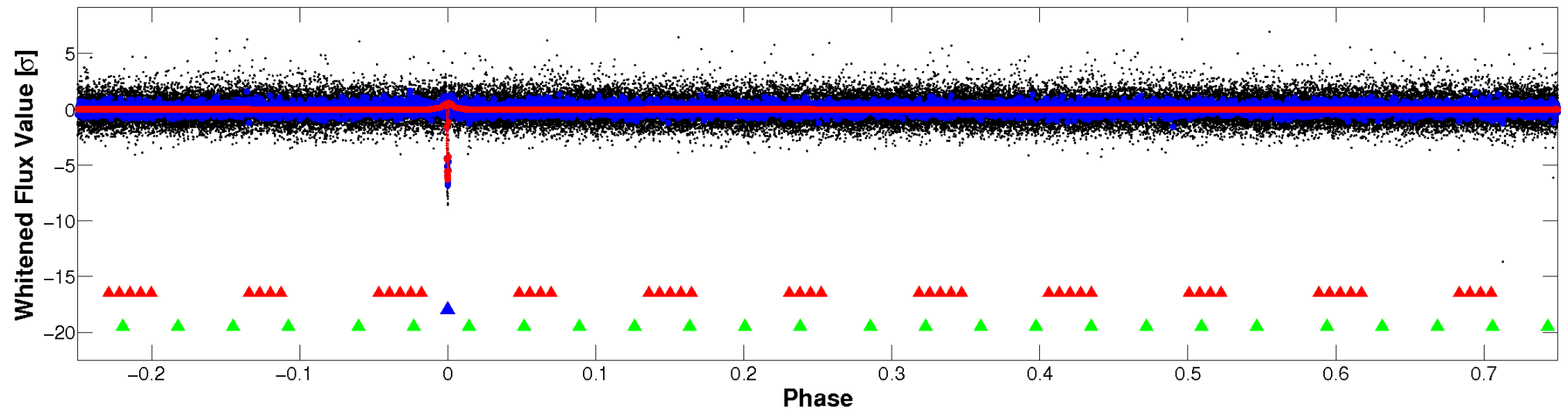


# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

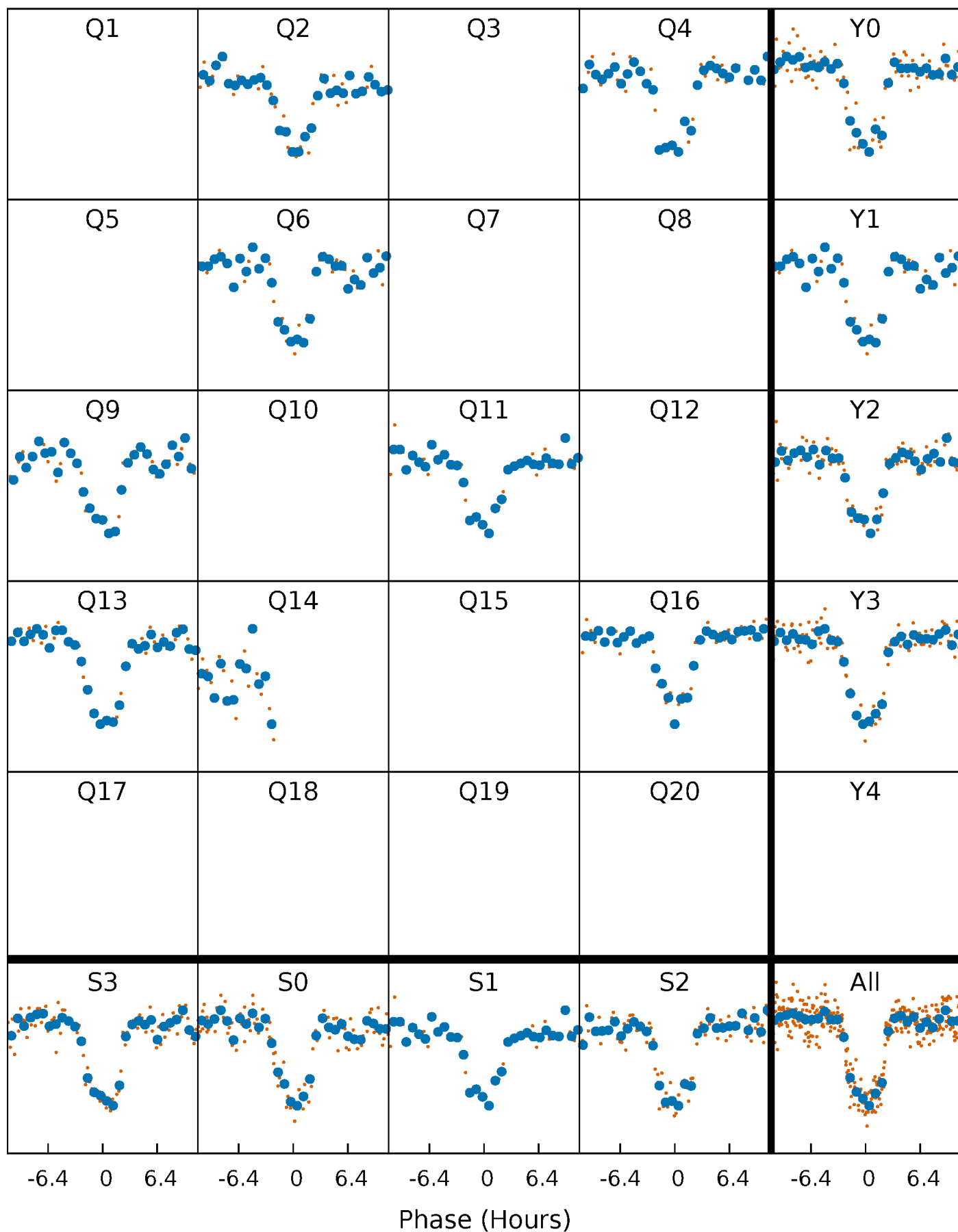


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



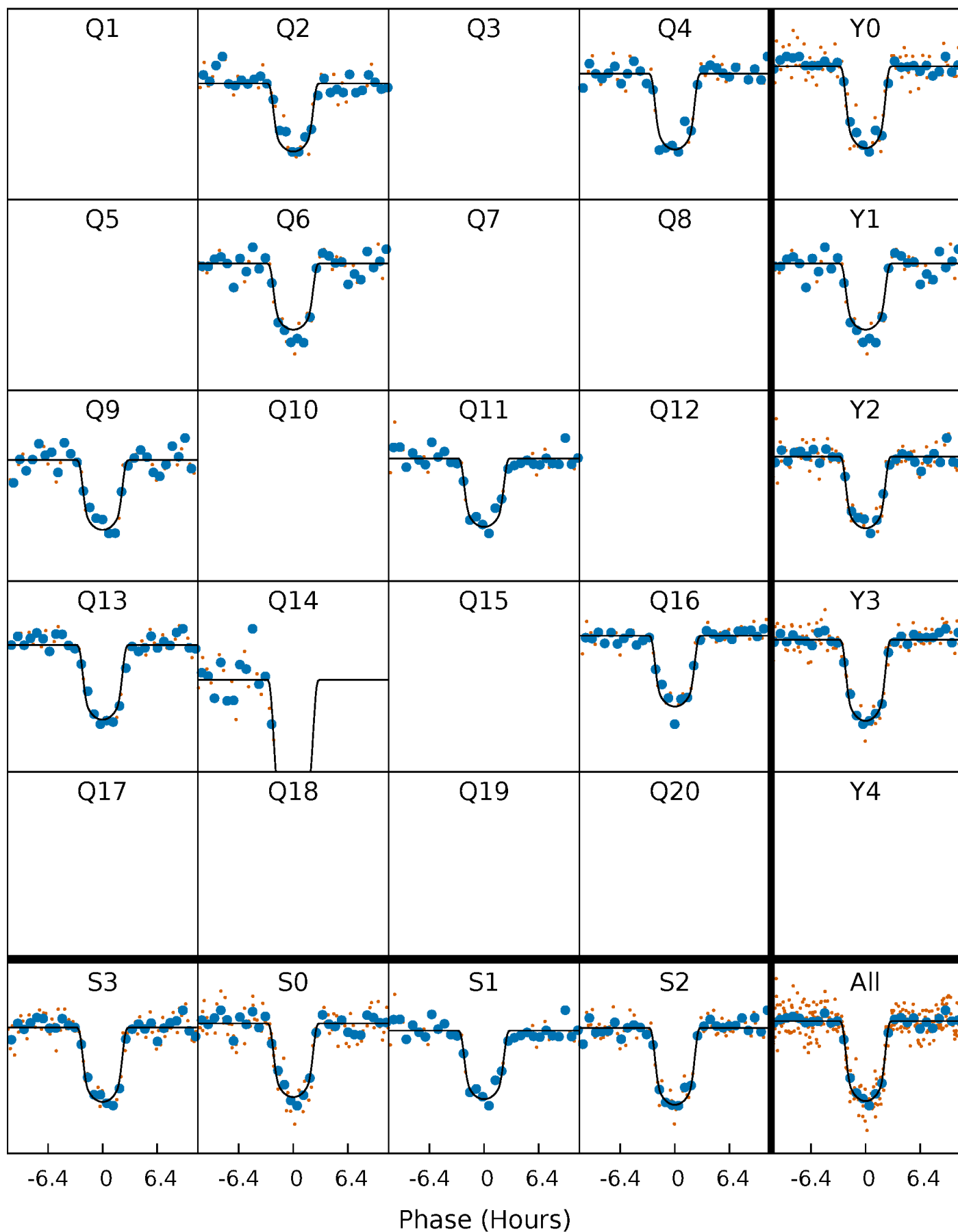
# PDC Quarter-Phased Transit Curves

TCE 003217264-02 P=160.019532 Days  $T_0=251.281183$  (BKJD)



# DV Quarter-Phased Transit Curves

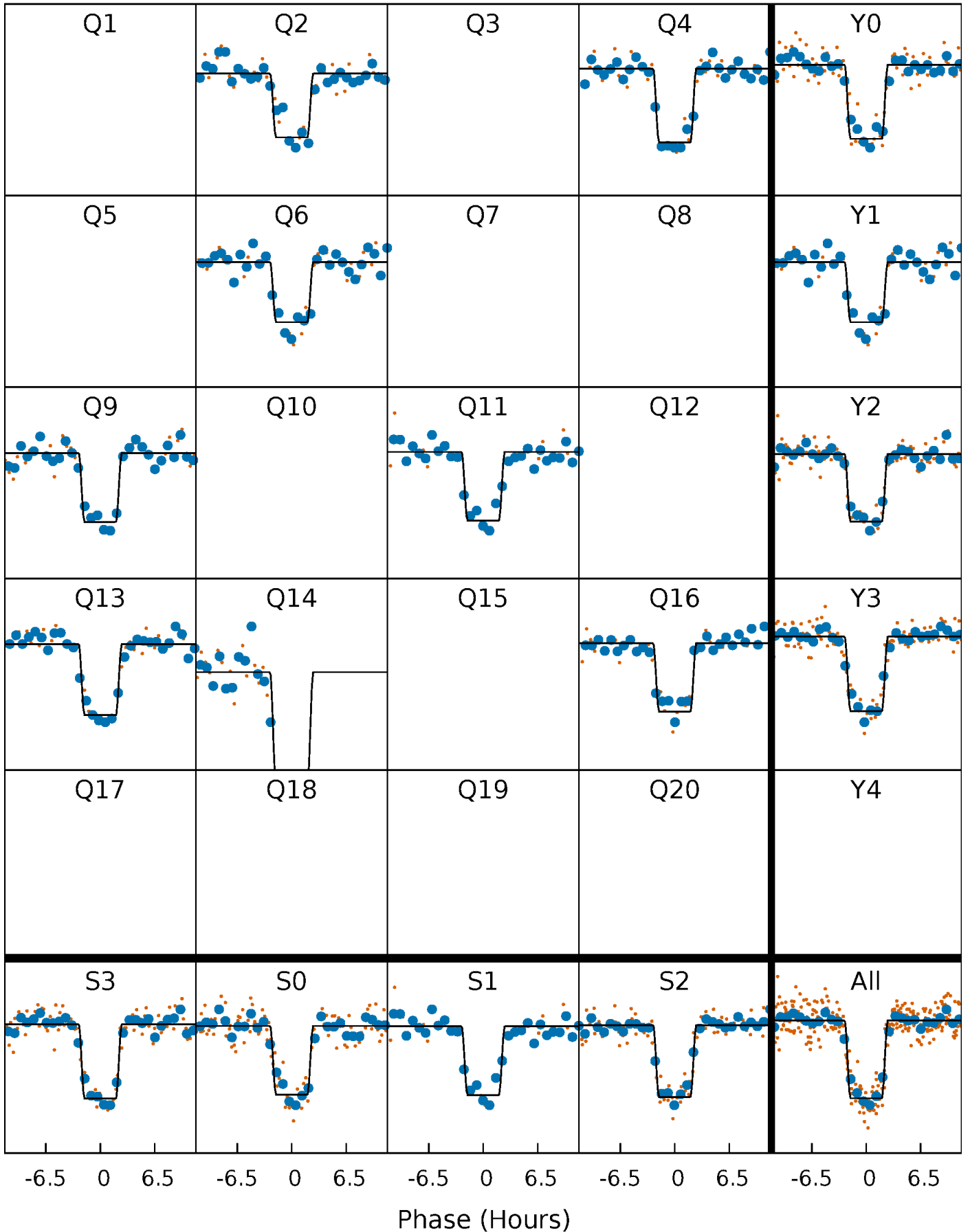
TCE 003217264-02   P=160.019532 Days    $T_0=251.281183$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

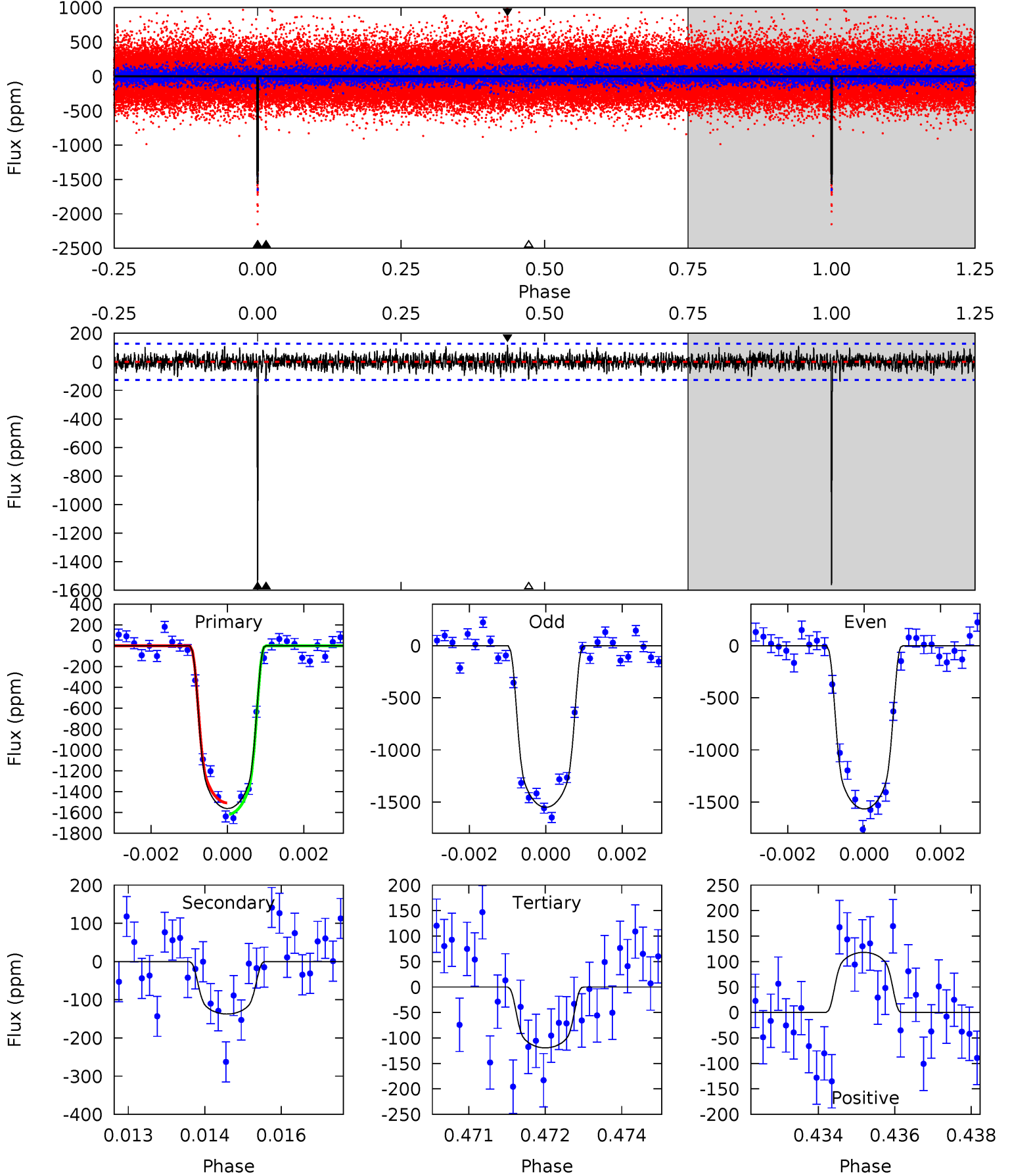
TCE 003217264-02 P=160.020905 Days  $T_0=251.276750$  (BKJD)



# DV Model-Shift Uniqueness Test

003217264-02, P = 160.019532 Days, E = 91.261651 Days

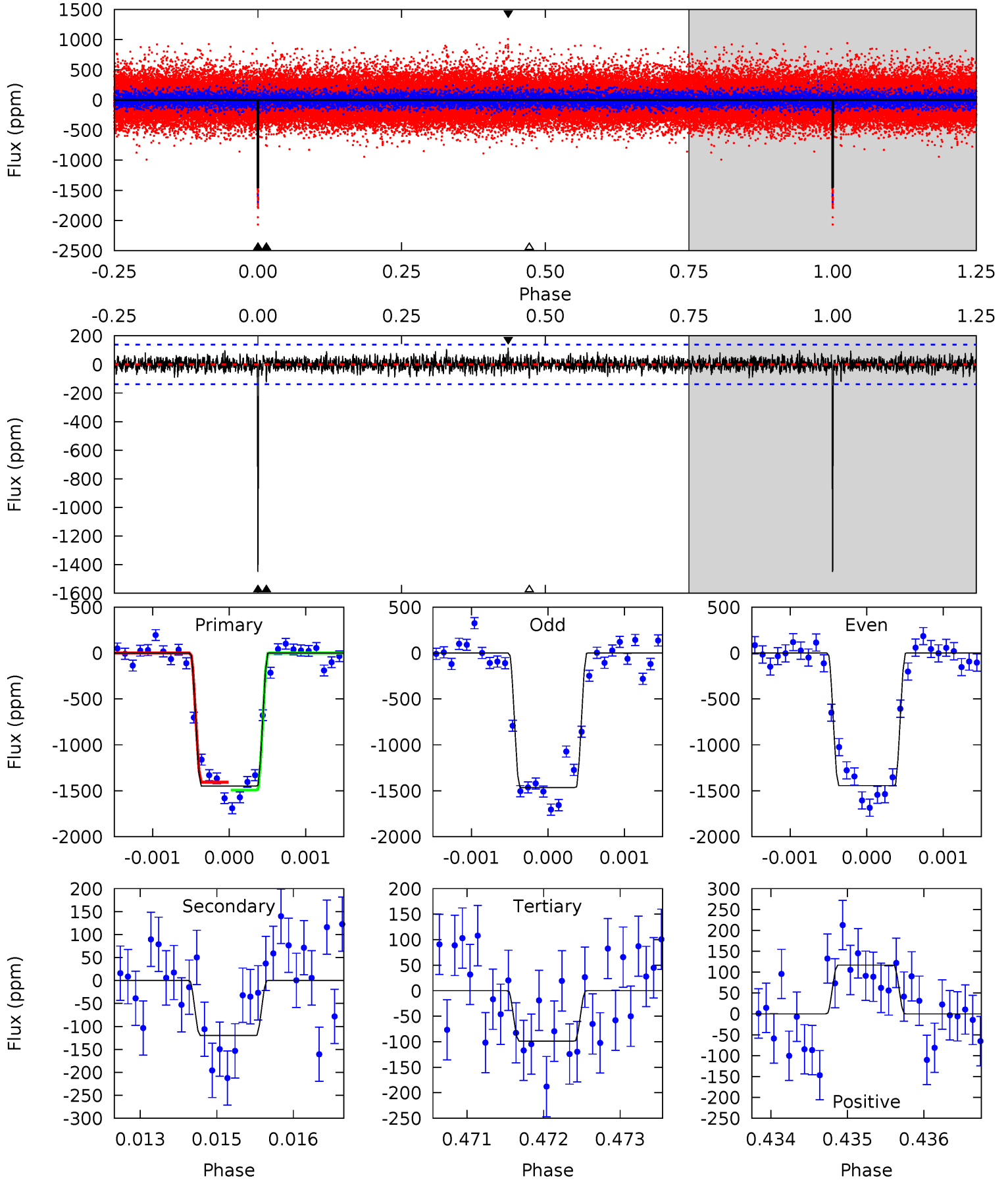
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
66.0	5.80	5.05	4.99	5.37	3.16	1.34	61.0	61.0	0.76	0.81	0.31	1.01	0.07	2.32



# Alt Model-Shift Uniqueness Test

003217264-02,  $P = 160.020905$  Days,  $E = 91.255845$  Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.5	4.67	3.84	4.55	5.40	3.21	1.10	52.6	51.9	0.83	0.12	0.36	1.01	0.07	1.70



### Stellar Parameters For KIC 003217264

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5376^{+107}_{-107}$	$4.462^{+0.060}_{-0.090}$	$0.280^{+0.150}_{-0.150}$	$0.940^{+0.110}_{-0.073}$	$0.934^{+0.045}_{-0.050}$	$1.582^{+0.387}_{-0.410}$
	+2%/-2%	+1%/-2%	+54%/-54%	+12%/-8%	+5%/-5%	+24%/-26%
Source	SPE58	SPE58	SPE58	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003217264-02 / KOI 0401.02

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-137 \pm 24$	$4.42^{+0.32}_{-0.26}$	$429^{+15}_{-14}$	$3332^{+101}_{-107}$	$1208^{+292}_{-244}$
Alt.	$-120 \pm 26$	$3.99^{+0.28}_{-0.25}$	$429^{+16}_{-13}$	$3371^{+119}_{-133}$	$1282^{+375}_{-279}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

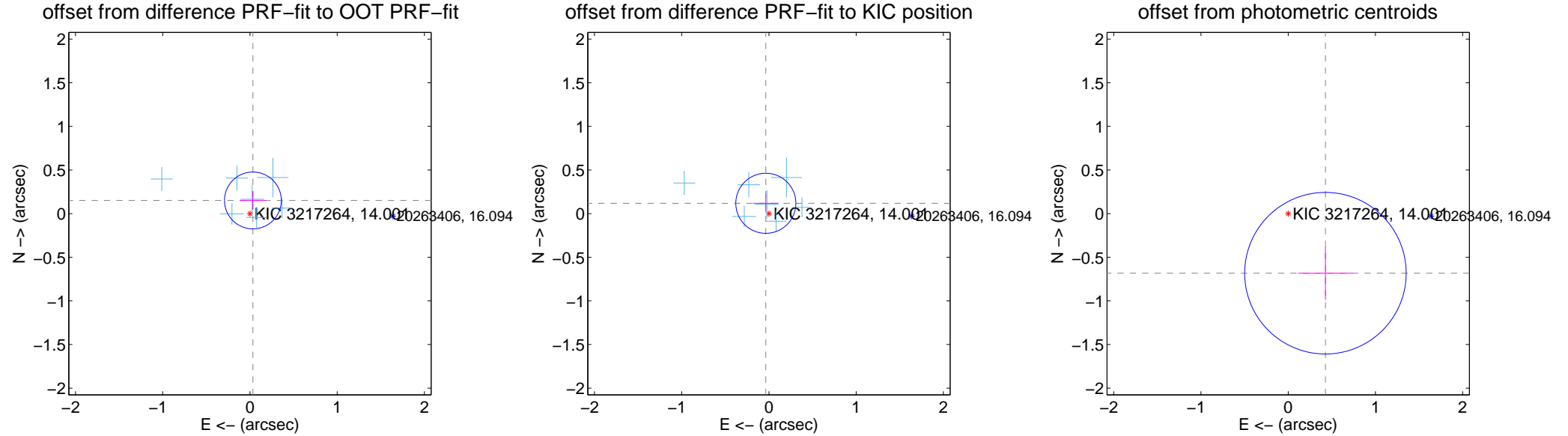
## DV Centroid Data

Supplemental centroid analysis for 003217264-02. Kepler magnitude: 14.00. Transit SNR 44.39

There are 7 quarters with good PRF difference image offsets

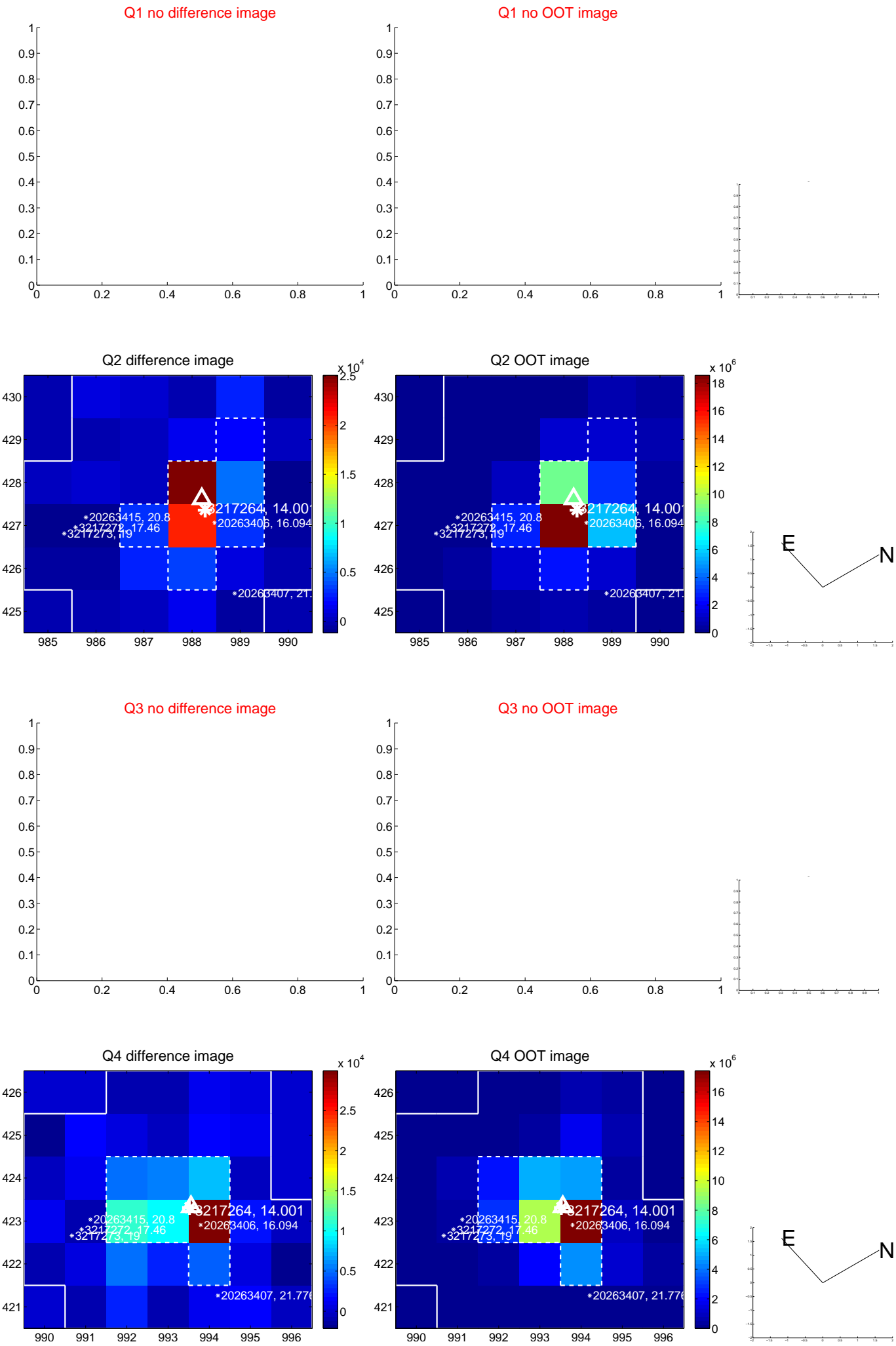
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.155 \pm 0.109$	1.43	$-0.034 \pm 0.149$	$0.151 \pm 0.106$
PRF-fit source offset from KIC position	$0.124 \pm 0.115$	1.08	$0.035 \pm 0.146$	$0.118 \pm 0.103$
photometric centroid source offset	$0.81 \pm 0.31$	2.61	$-0.43 \pm 0.31$	$-0.68 \pm 0.31$

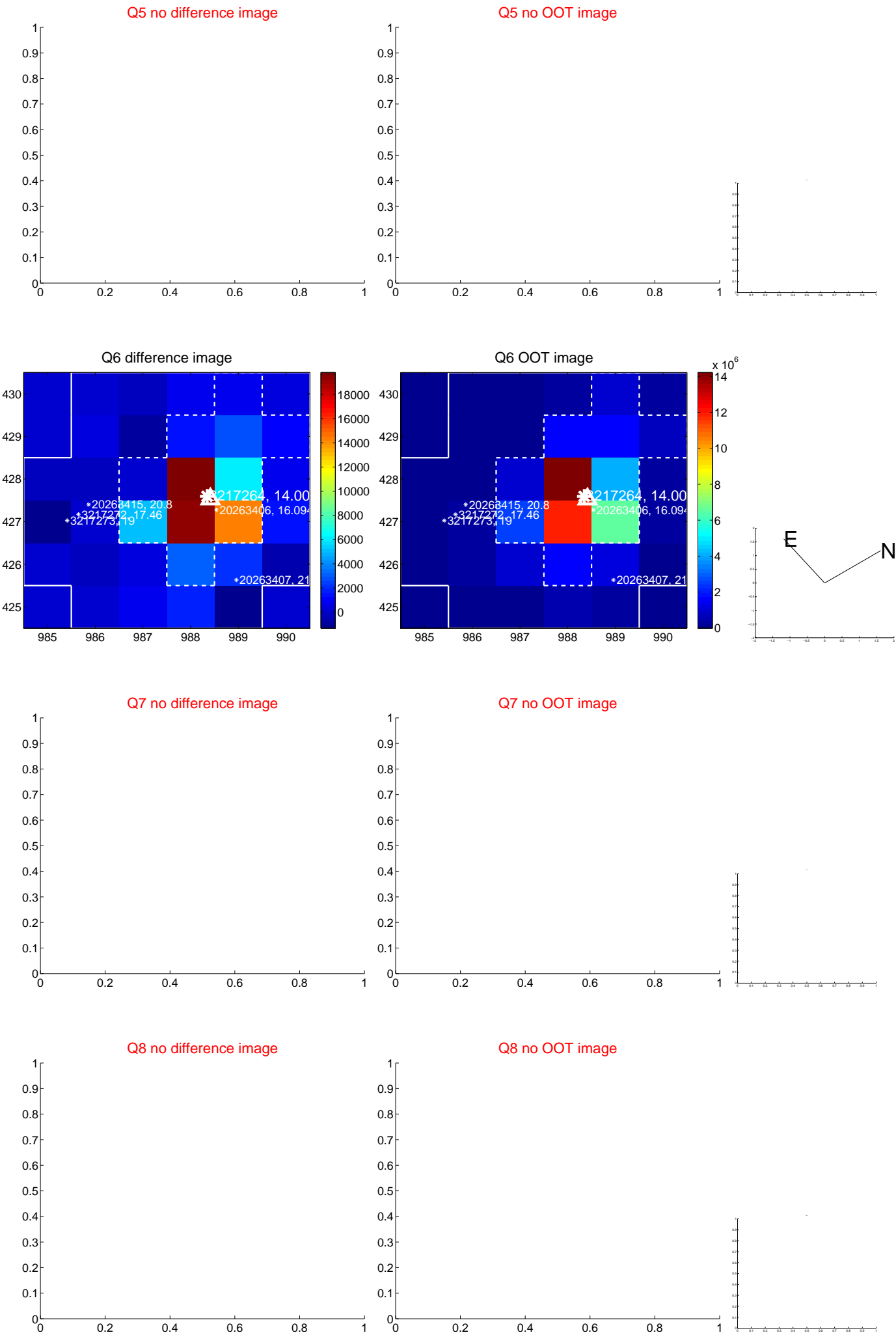


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

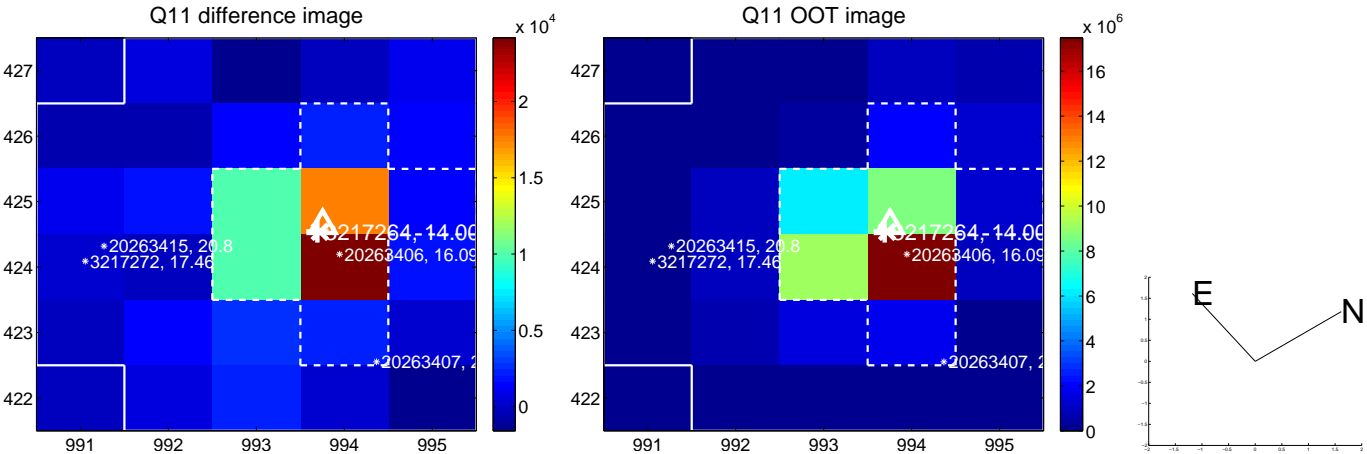
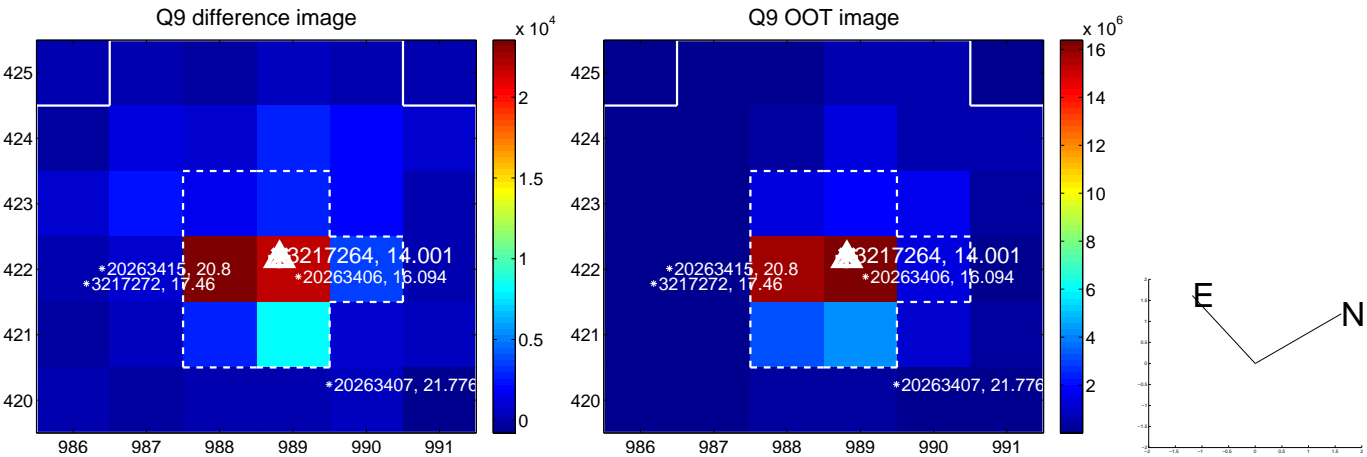


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

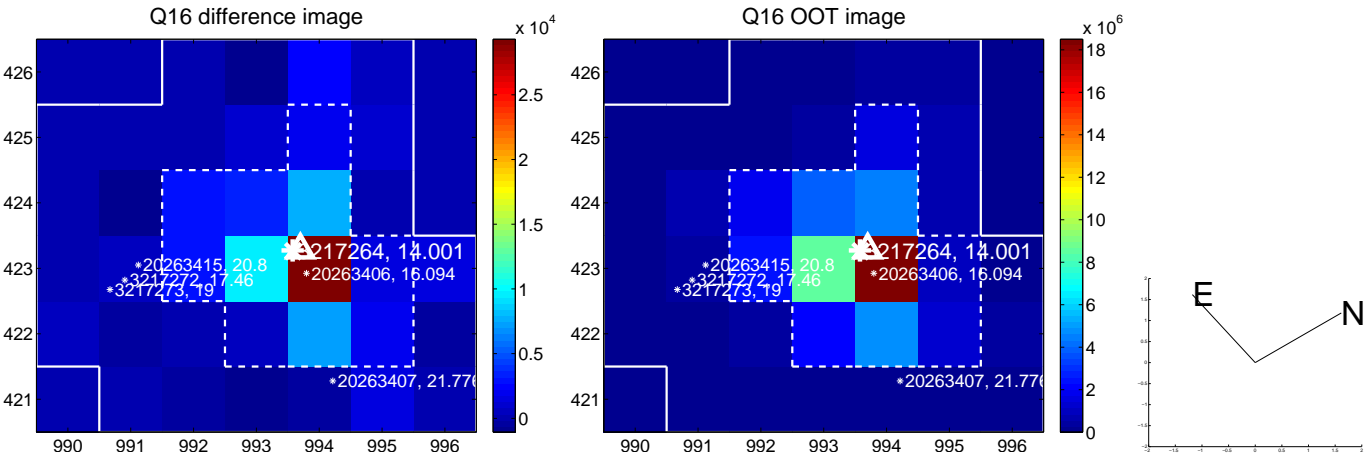
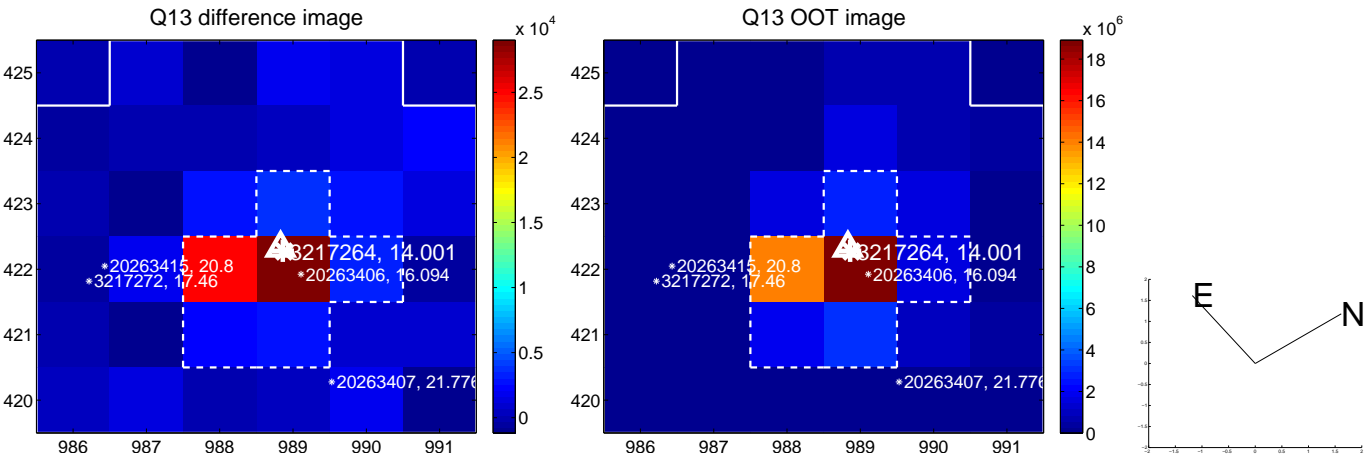




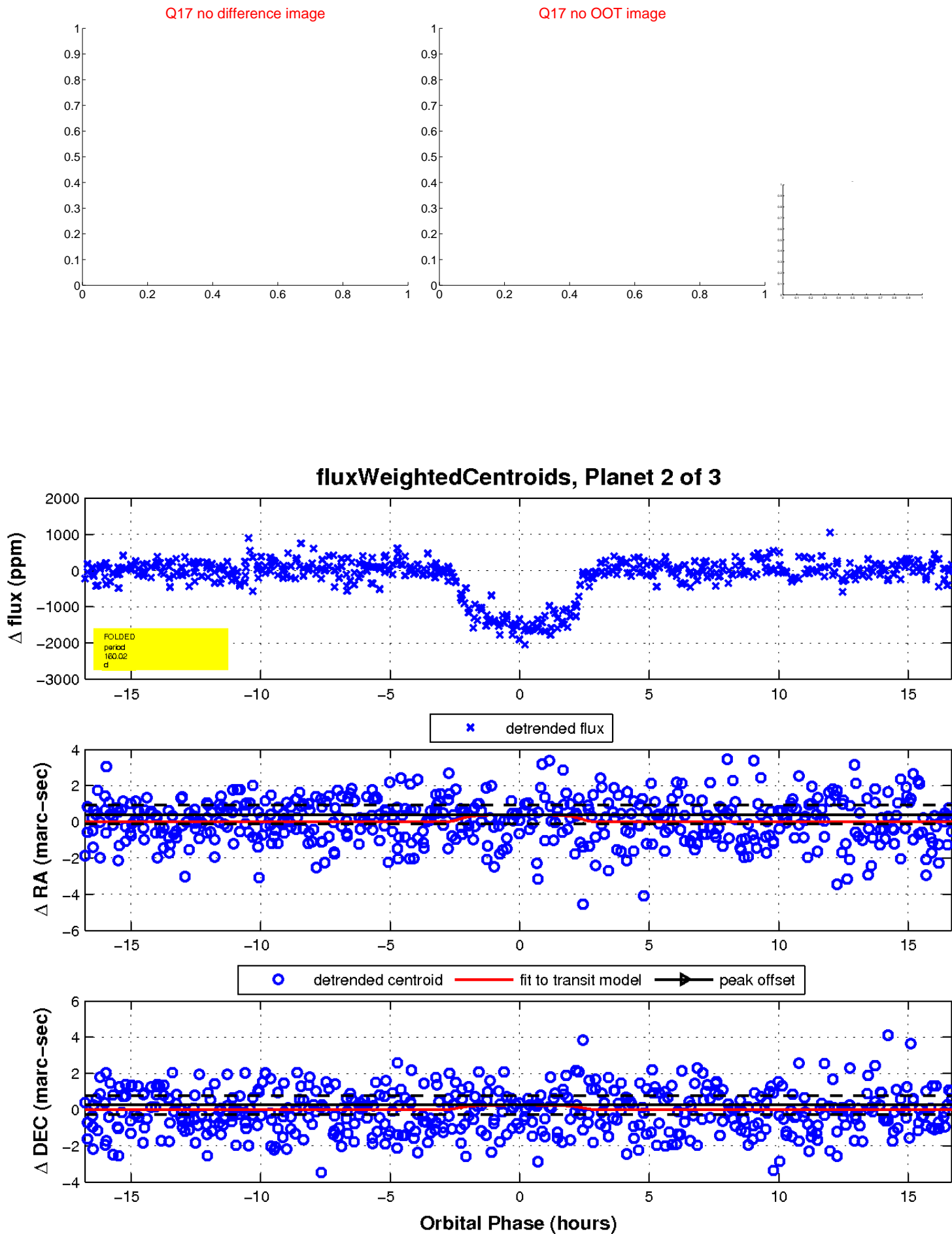
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

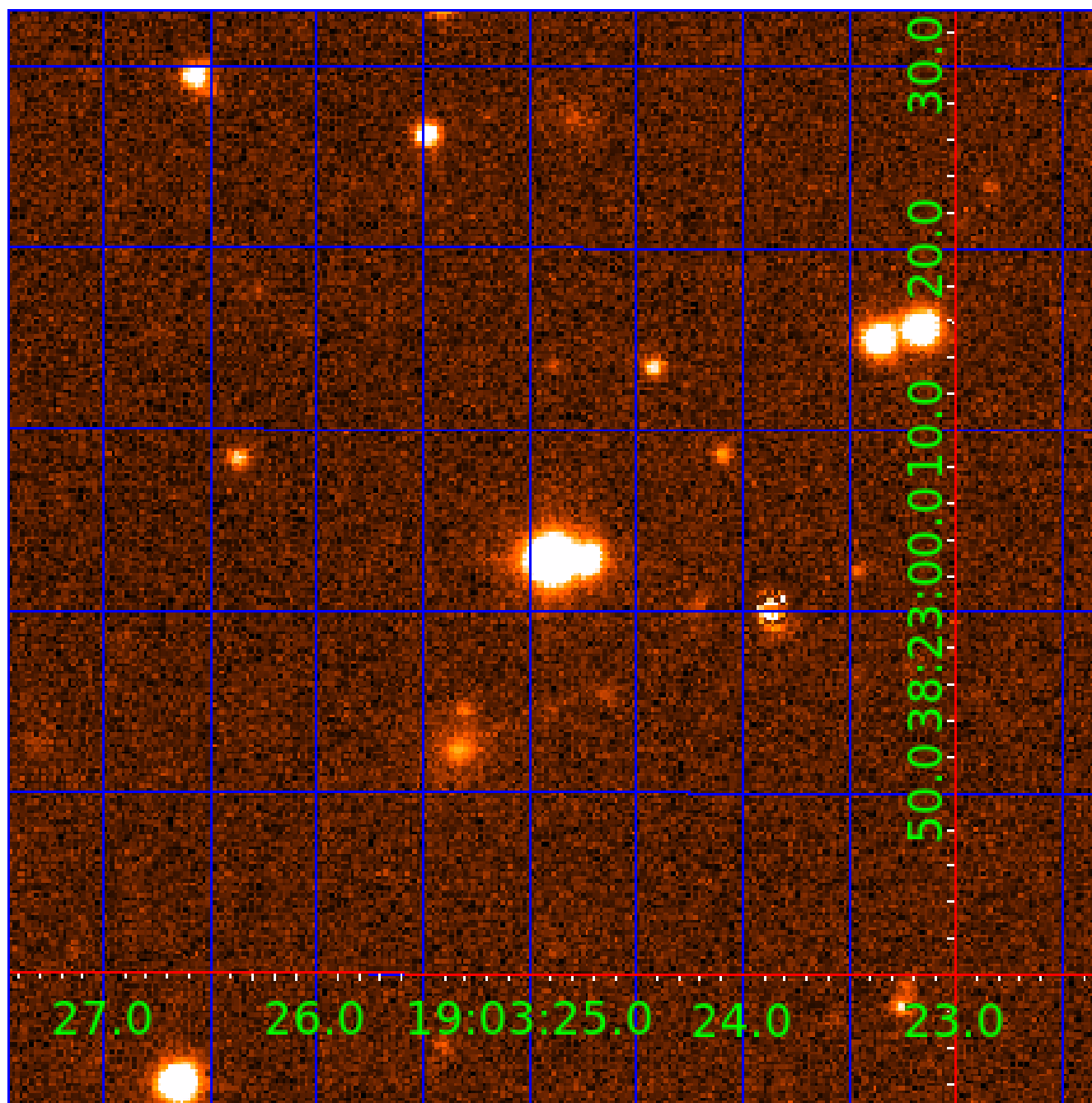


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003217264

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003217264-01	OBS	0401.01	29.199007	156.241315	2054.9	5.387	150.7	148.8	0.94	5376	4.66	20.09
003217264-02	OBS	0401.02	160.019532	251.281183	1573.2	5.597	47.0	44.4	0.94	5376	4.40	2.08
003217264-03	OBS	0401.03	55.328863	186.317610	320.3	7.211	16.5	18.5	0.94	5376	2.06	8.57

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003217264-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003217264-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003217264-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

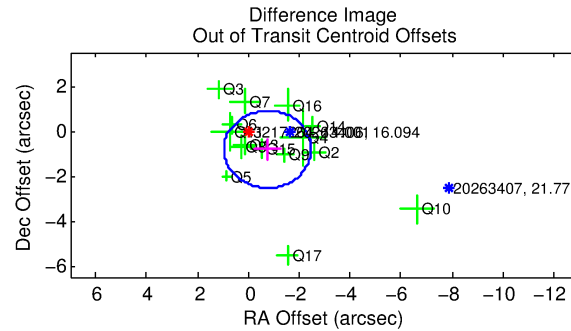
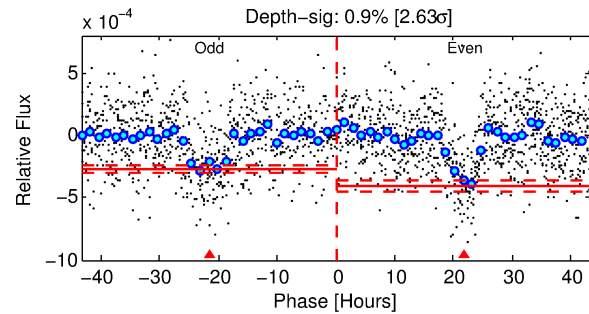
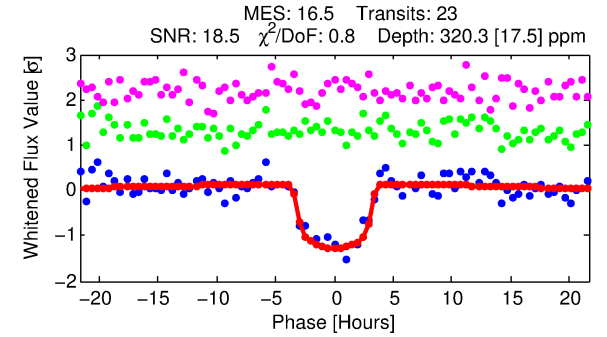
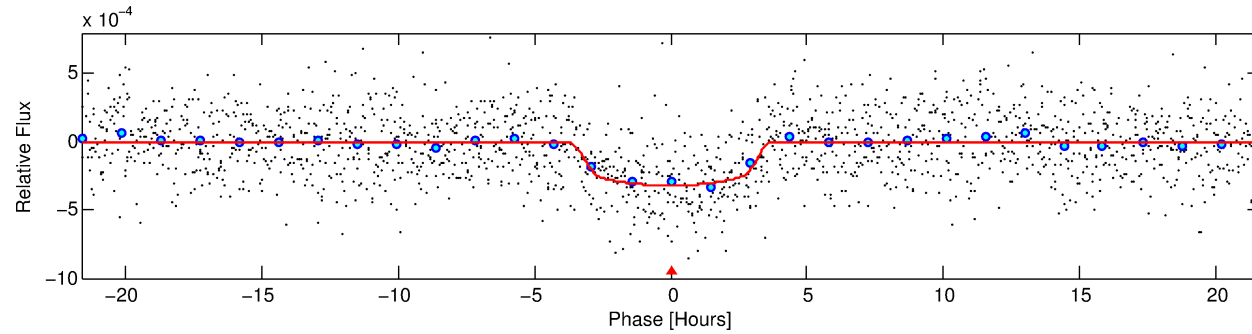
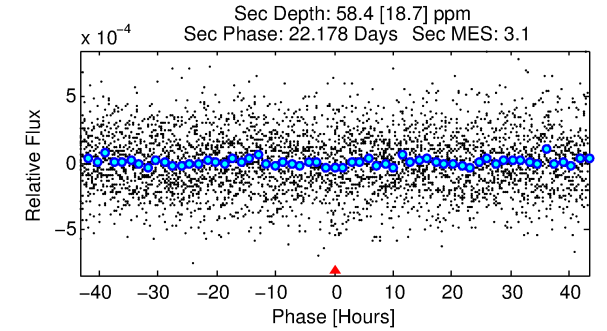
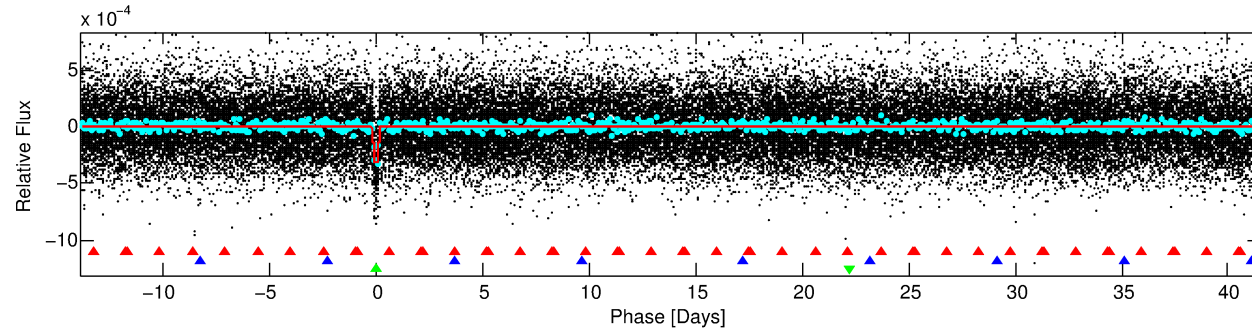
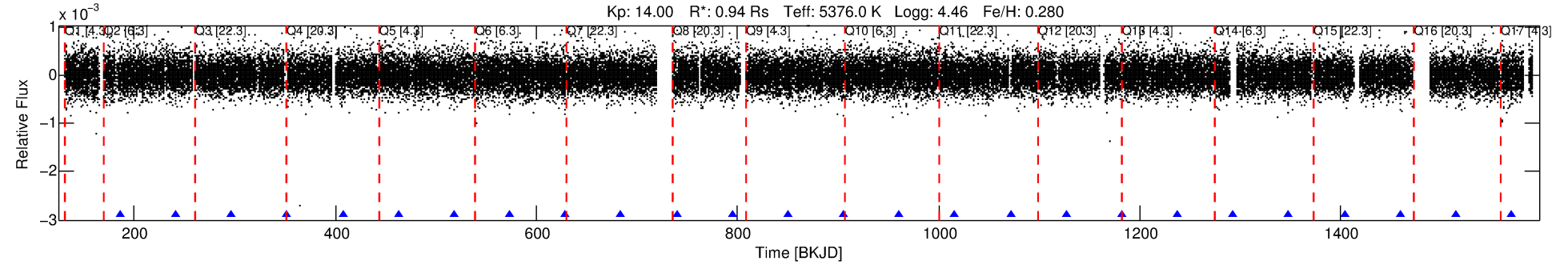
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003217264-03

No Significant Match Found

# DV One-Page Summary

KIC: 3217264 Candidate: 3 of 3 Period: 55.329 d  
KOI: K00401.03 Name: Kepler-149c Corr: 0.979



## DV Fit Results:

Period = 55.32886 [0.00050] d  
Epoch = 186.3176 [0.0071] BKJD  
Rp/R\* = 0.0201 [0.0018]  
a/R\* = 26.61 [9.53]  
b = 0.91 [0.07]  
Seff = 8.57 [1.52]  
Teq = 436 [19] K  
Rp = 2.06 [0.30] Re  
a = 0.2778 [0.0289] AU  
Ag = 581.91 [232.66] [2.50σ]  
Teffp = 3313 [311] K [9.23σ]

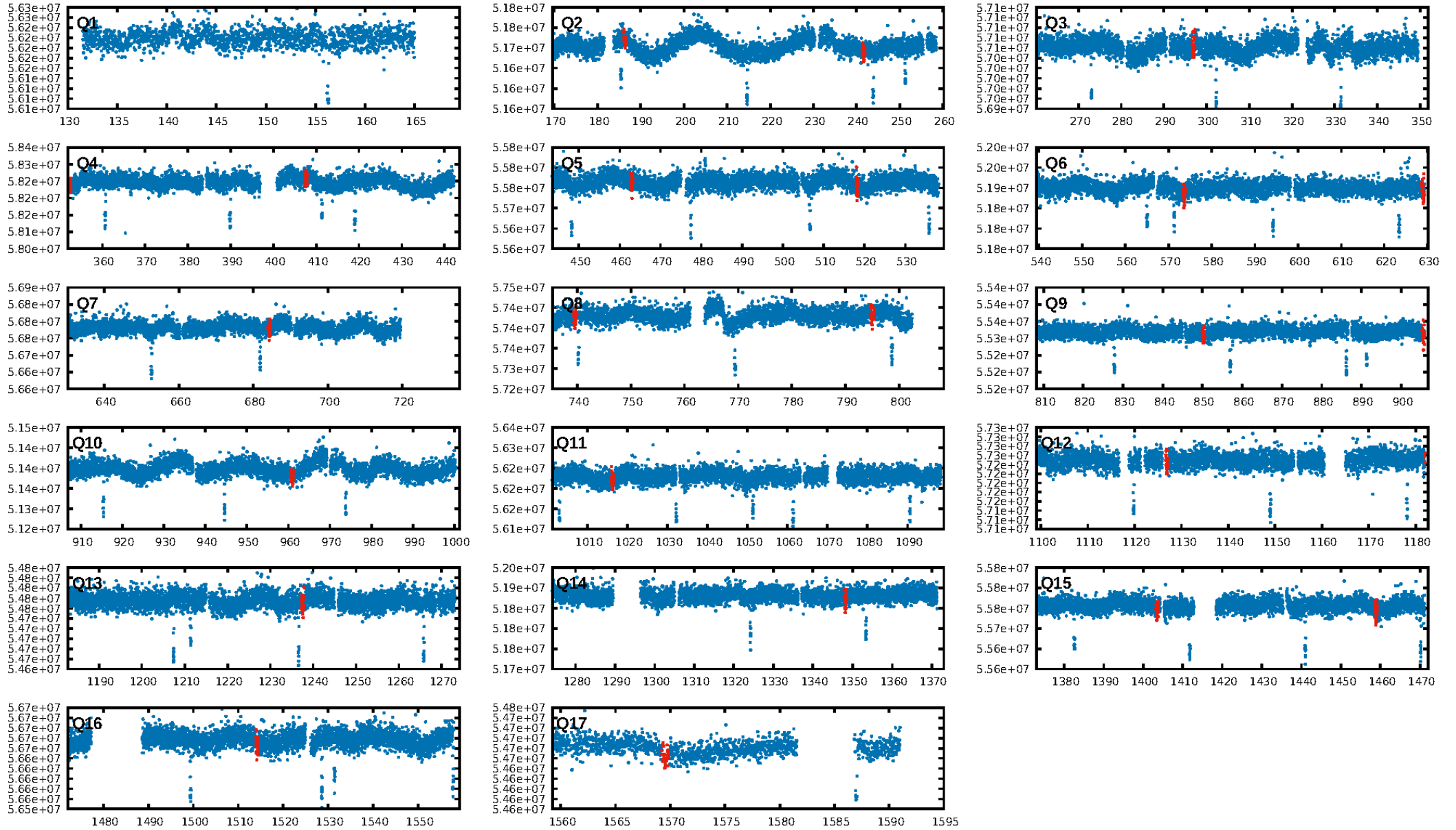
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [69.67σ]  
LongPeriod-sig: 100.0% [275.24σ]  
ModelChiSquare2-sig: 41.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.07e-62  
RollingBand-fgt: 1.00 [22/22]  
GhostDiagnostic-chr: -22.4  
Centroid-sig: 3.2%  
Centroid-so: 0.857 arcsec [1.15σ]  
OotOffset-rm: 1.112 arcsec [1.94σ]  
KicOffset-rm: 1.109 arcsec [1.88σ]  
OotOffset-st: 4/4/3/4 [15]  
KicOffset-st: 4/4/3/4 [15]  
DiffImageQuality-fgm: 0.87 [13/15]  
DiffImageOverlap-fno: 1.00 [15/15]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:55:23 Z

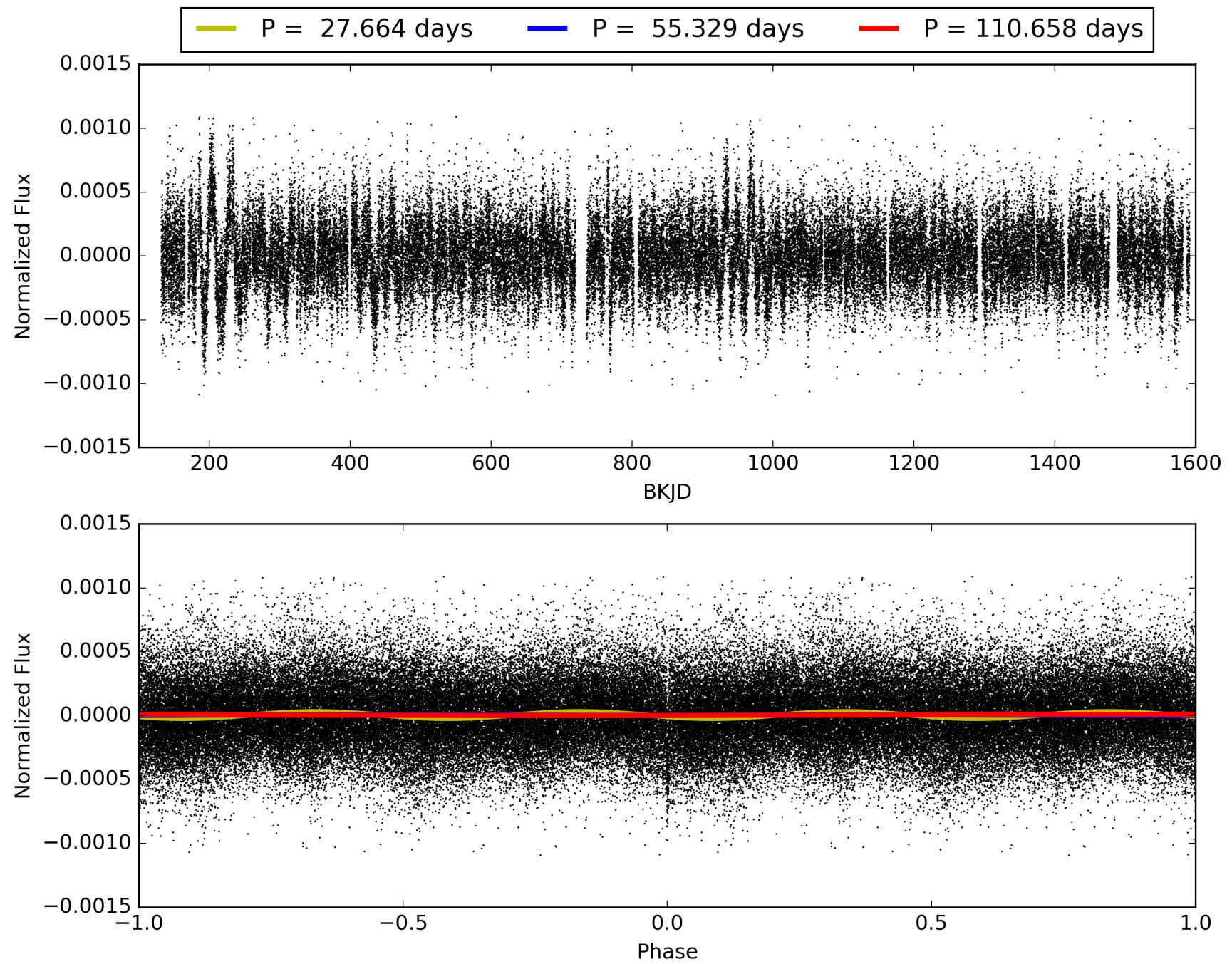
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003217264-03, PDC Light Curves





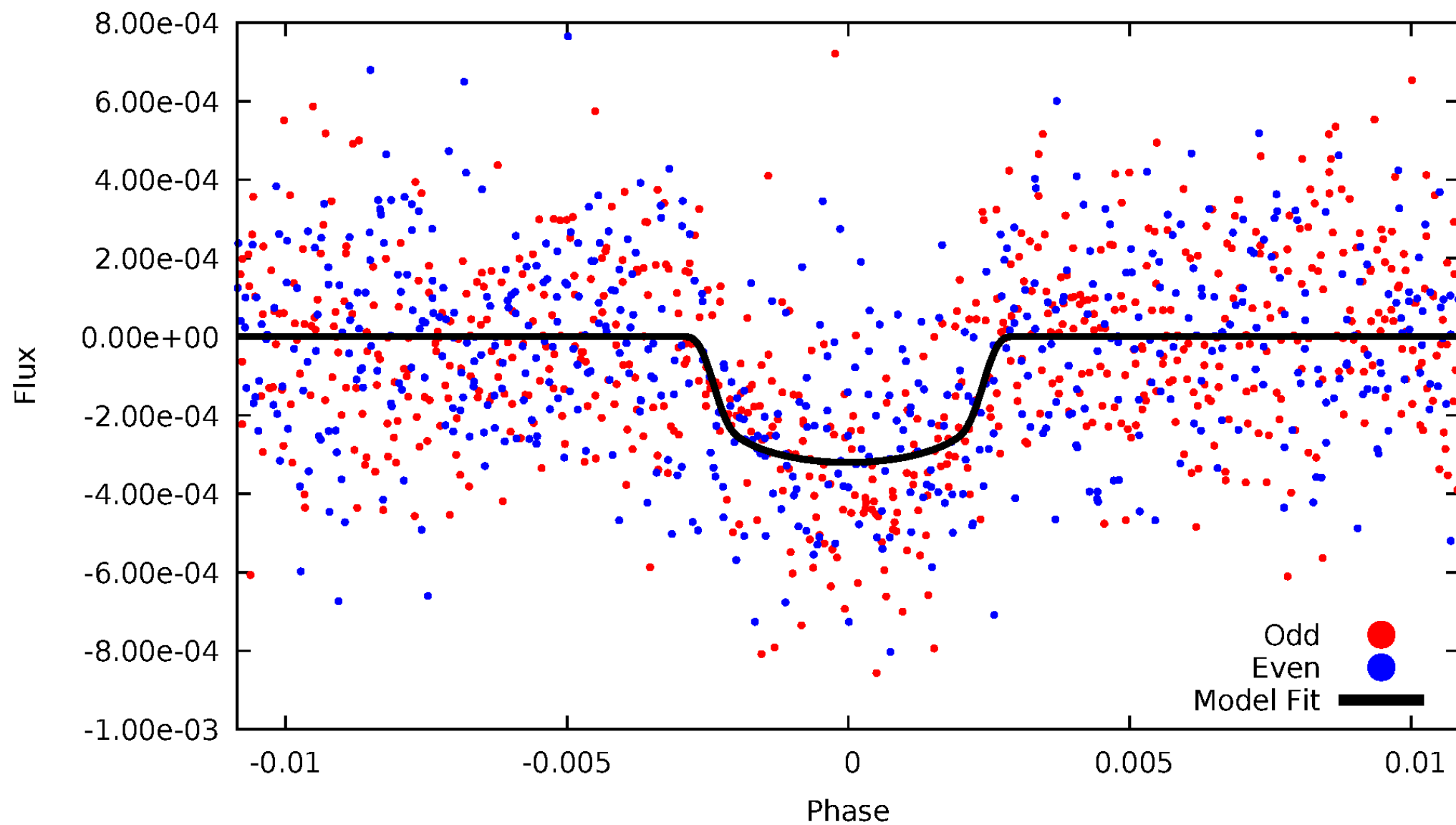
# TCE 003217264-03





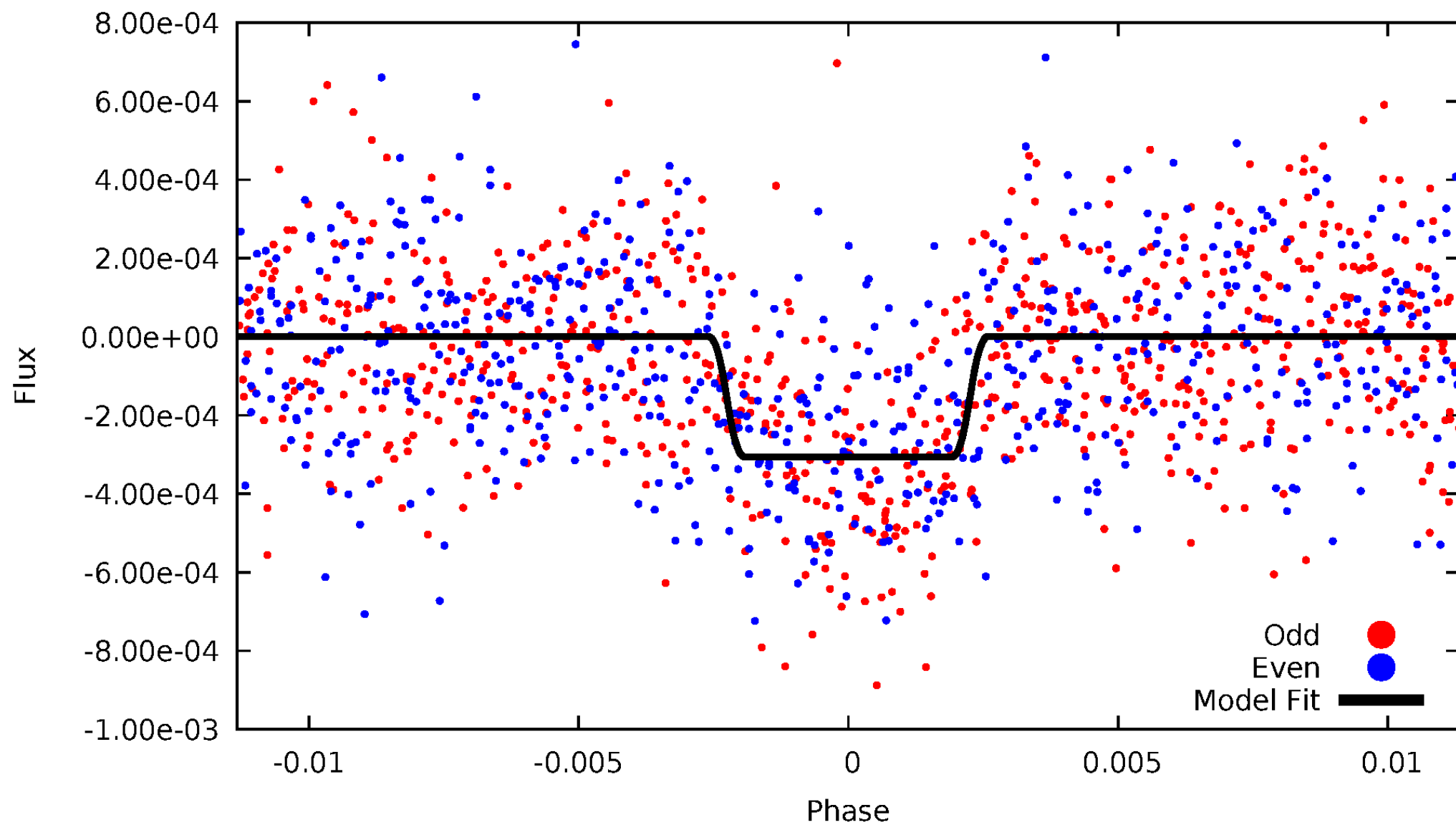
# DV Odd/Even

TCE 003217264-03



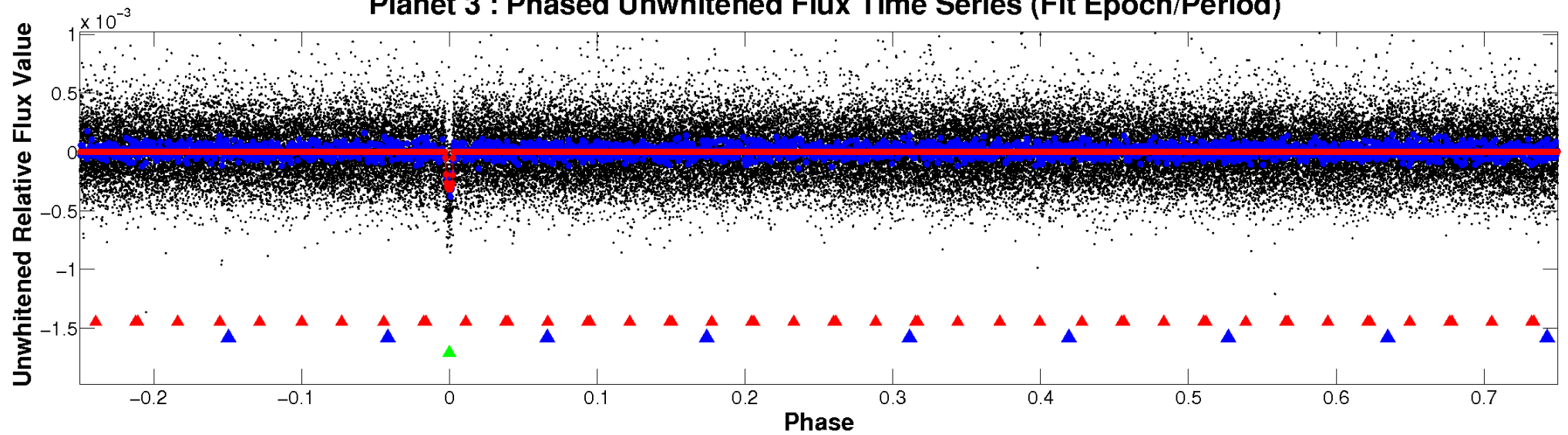
# ALT Odd/Even

TCE 003217264-03

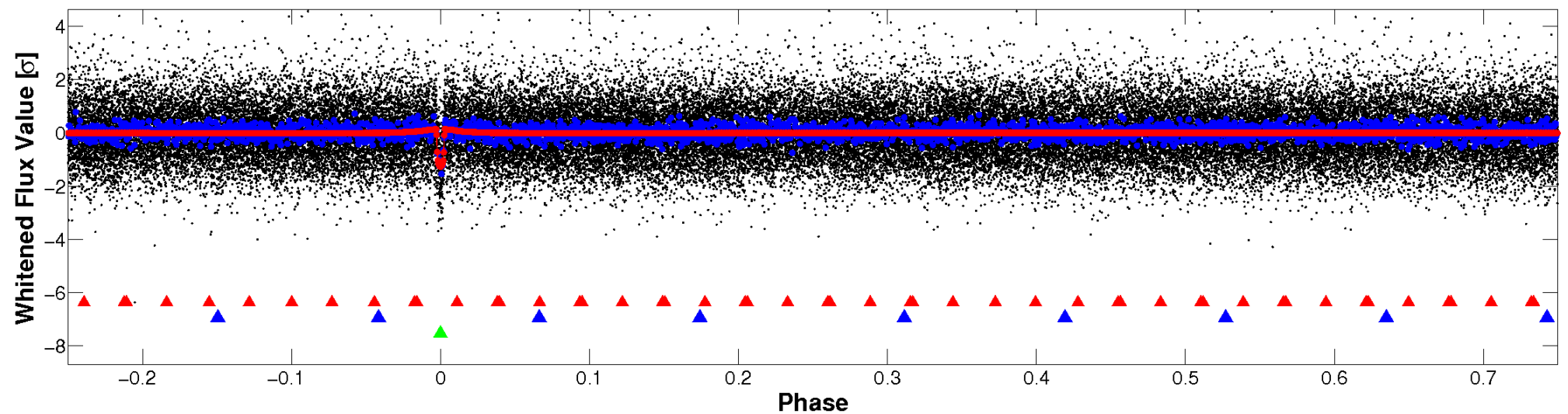


# Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

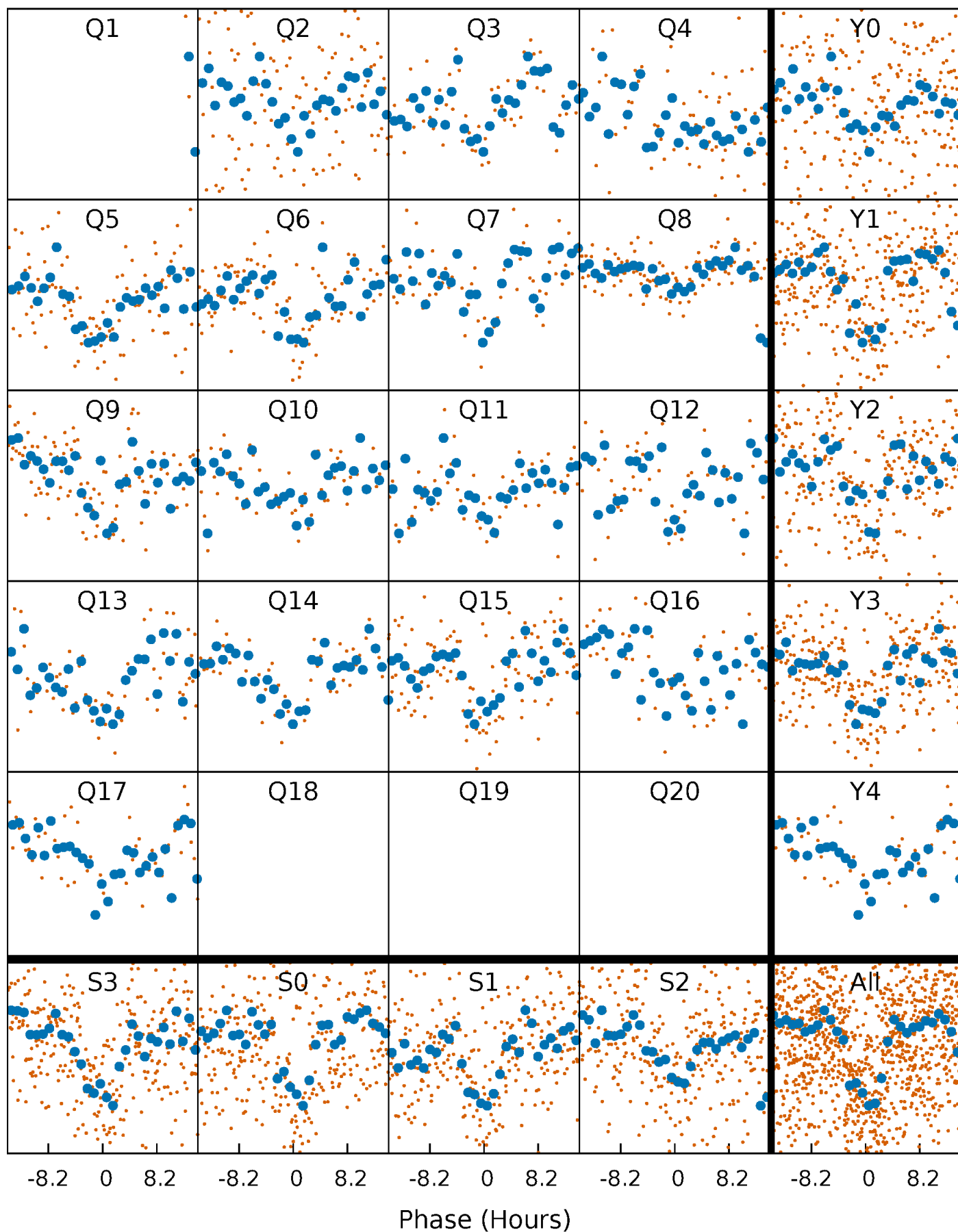


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



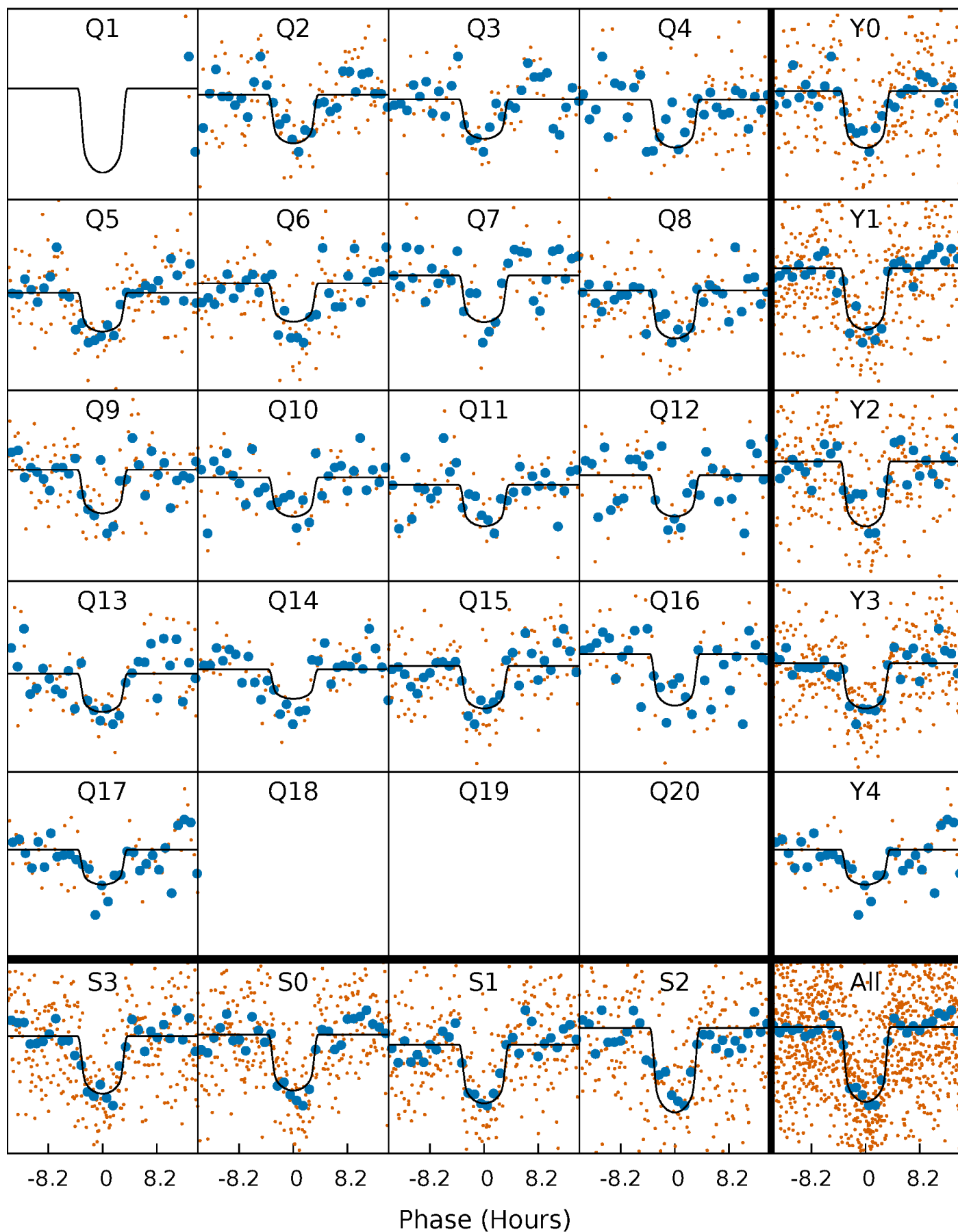
# PDC Quarter-Phased Transit Curves

TCE 003217264-03 P= 55.328863 Days  $T_0=186.317610$  (BKJD)



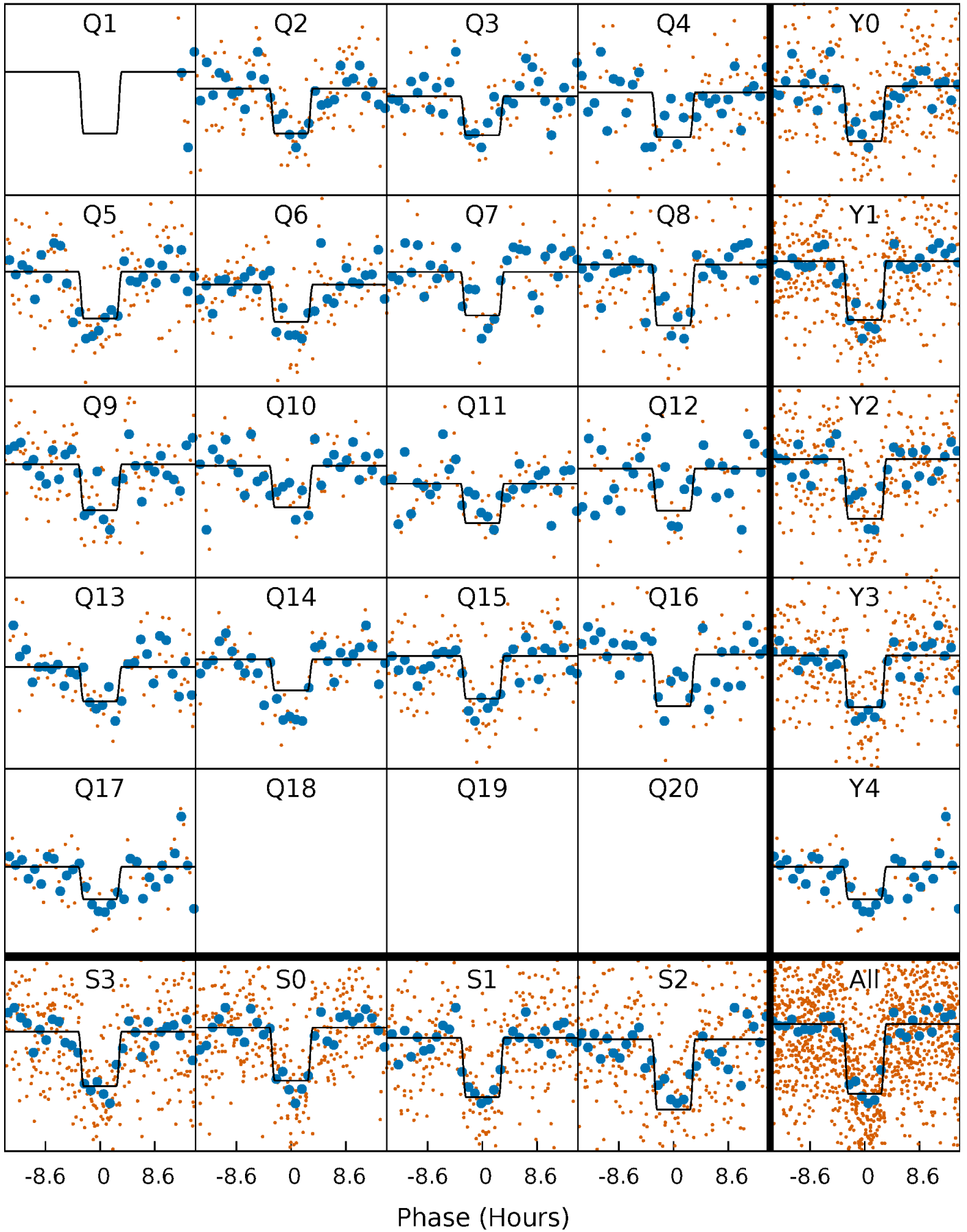
# DV Quarter-Phased Transit Curves

TCE 003217264-03   P= 55.328863 Days    $T_0=186.317610$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

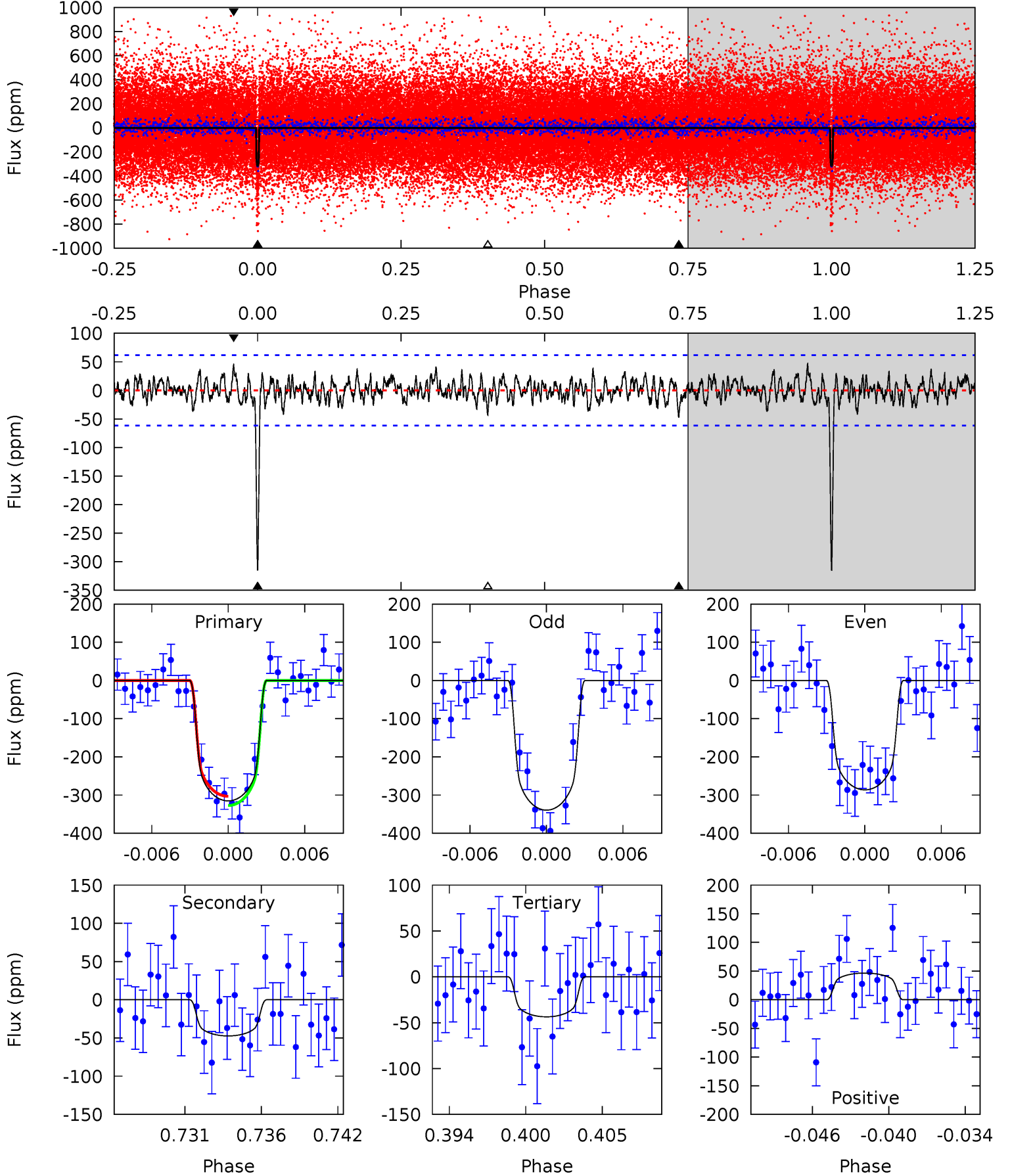
TCE 003217264-03 P= 55.328078 Days  $T_0=186.326357$  (BKJD)



# DV Model-Shift Uniqueness Test

003217264-03, P = 55.328863 Days, E = 130.988747 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.2	3.94	3.63	3.87	5.13	2.76	1.21	22.6	22.4	0.31	0.07	2.21	0.99	0.13	1.01

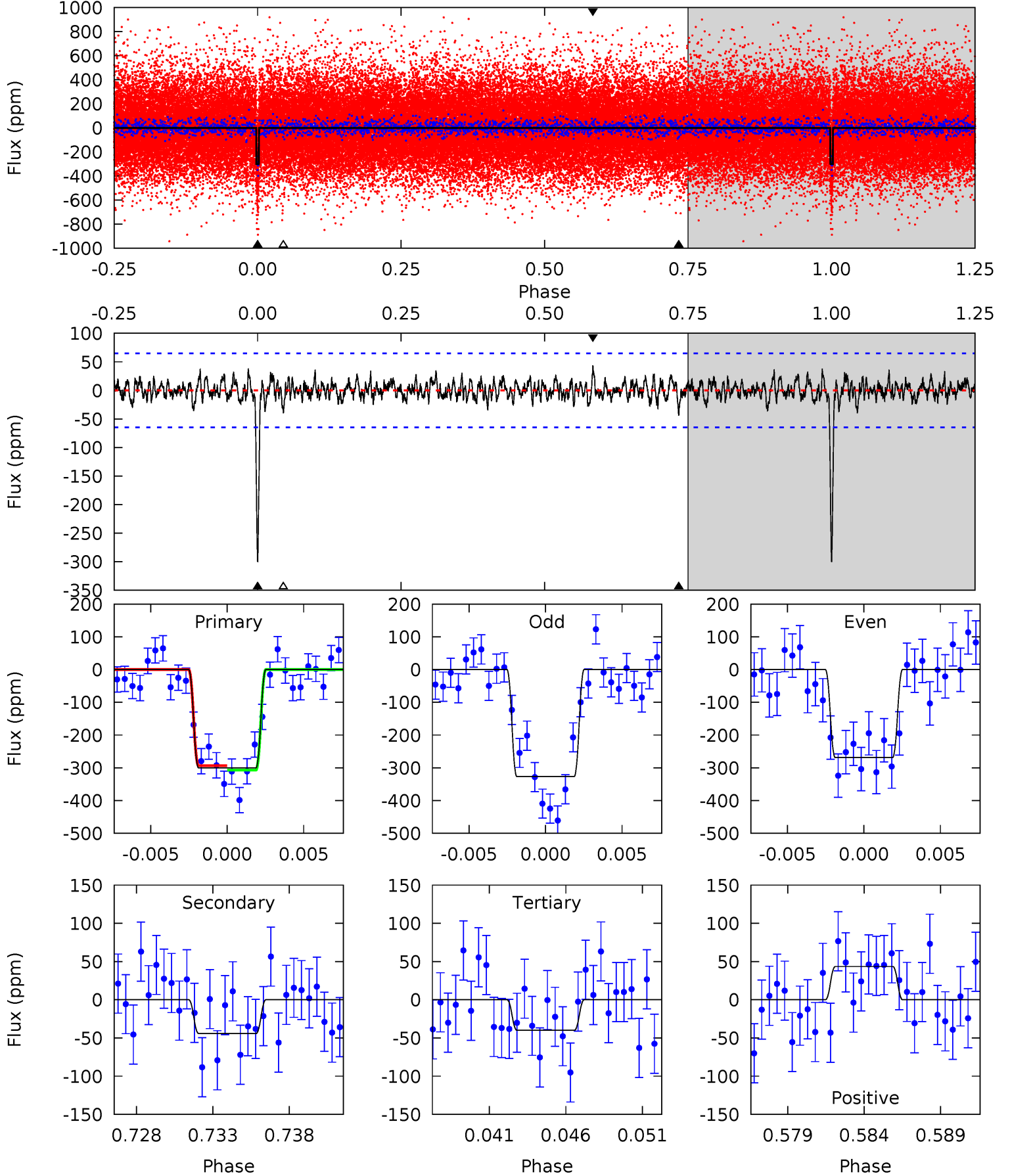




# Alt Model-Shift Uniqueness Test

003217264-03, P = 55.328078 Days, E = 130.998279 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.9	3.52	3.18	3.46	5.15	2.80	0.98	20.7	20.4	0.33	0.05	2.29	0.98	0.13	0.53





### Stellar Parameters For KIC 003217264

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5376^{+107}_{-107}$	$4.462^{+0.060}_{-0.090}$	$0.280^{+0.150}_{-0.150}$	$0.940^{+0.110}_{-0.073}$	$0.934^{+0.045}_{-0.050}$	$1.582^{+0.387}_{-0.410}$
	+2%/-2%	+1%/-2%	+54%/-54%	+12%/-8%	+5%/-5%	+24%/-26%
Source	SPE58	SPE58	SPE58	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003217264-03 / KOI 0401.03

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-47 \pm 12$	$2.08^{+0.23}_{-0.22}$	$612^{+22}_{-18}$	$3587^{+183}_{-202}$	$463^{+180}_{-144}$
Alt.	$-44 \pm 13$	$1.84^{+0.19}_{-0.22}$	$613^{+22}_{-19}$	$3689^{+223}_{-240}$	$548^{+235}_{-186}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

## DV Centroid Data

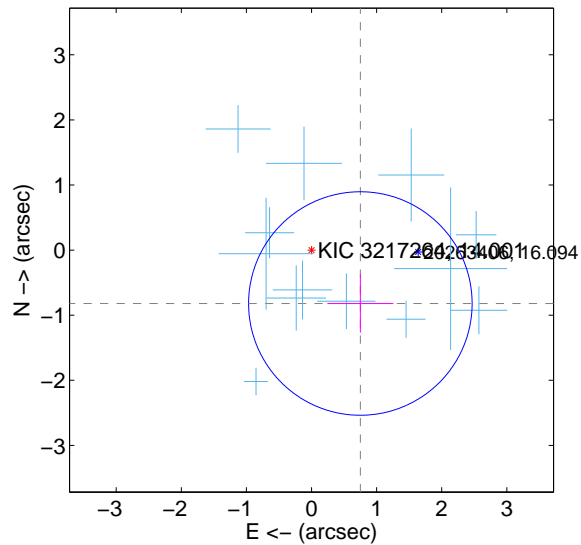
Supplemental centroid analysis for 003217264-03. Kepler magnitude: 14.00. Transit SNR 18.51

There are 13 quarters with good PRF difference image offsets

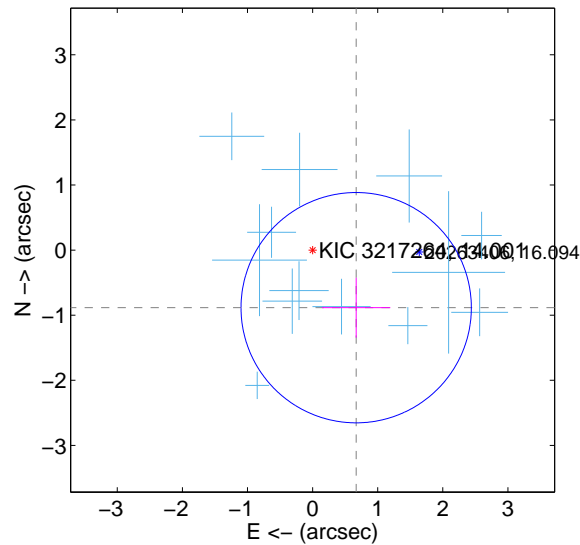
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.112 \pm 0.572$	1.94	$-0.750 \pm 0.506$	$-0.820 \pm 0.448$
PRF-fit source offset from KIC position	$1.109 \pm 0.590$	1.88	$-0.669 \pm 0.524$	$-0.885 \pm 0.460$
photometric centroid source offset	$0.86 \pm 0.75$	1.15	$-0.67 \pm 0.75$	$0.53 \pm 0.75$

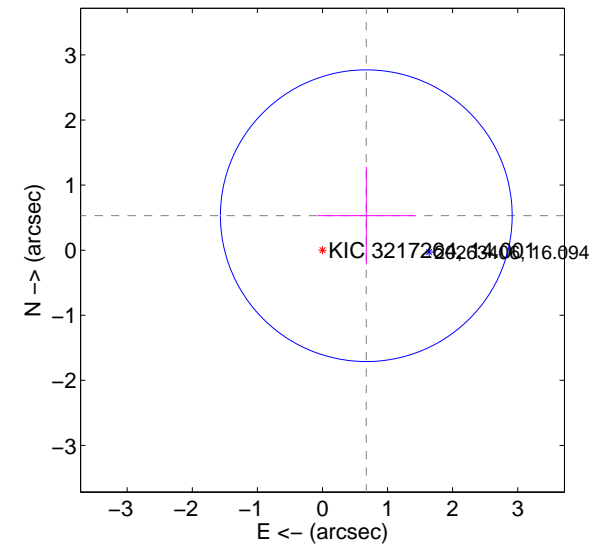
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

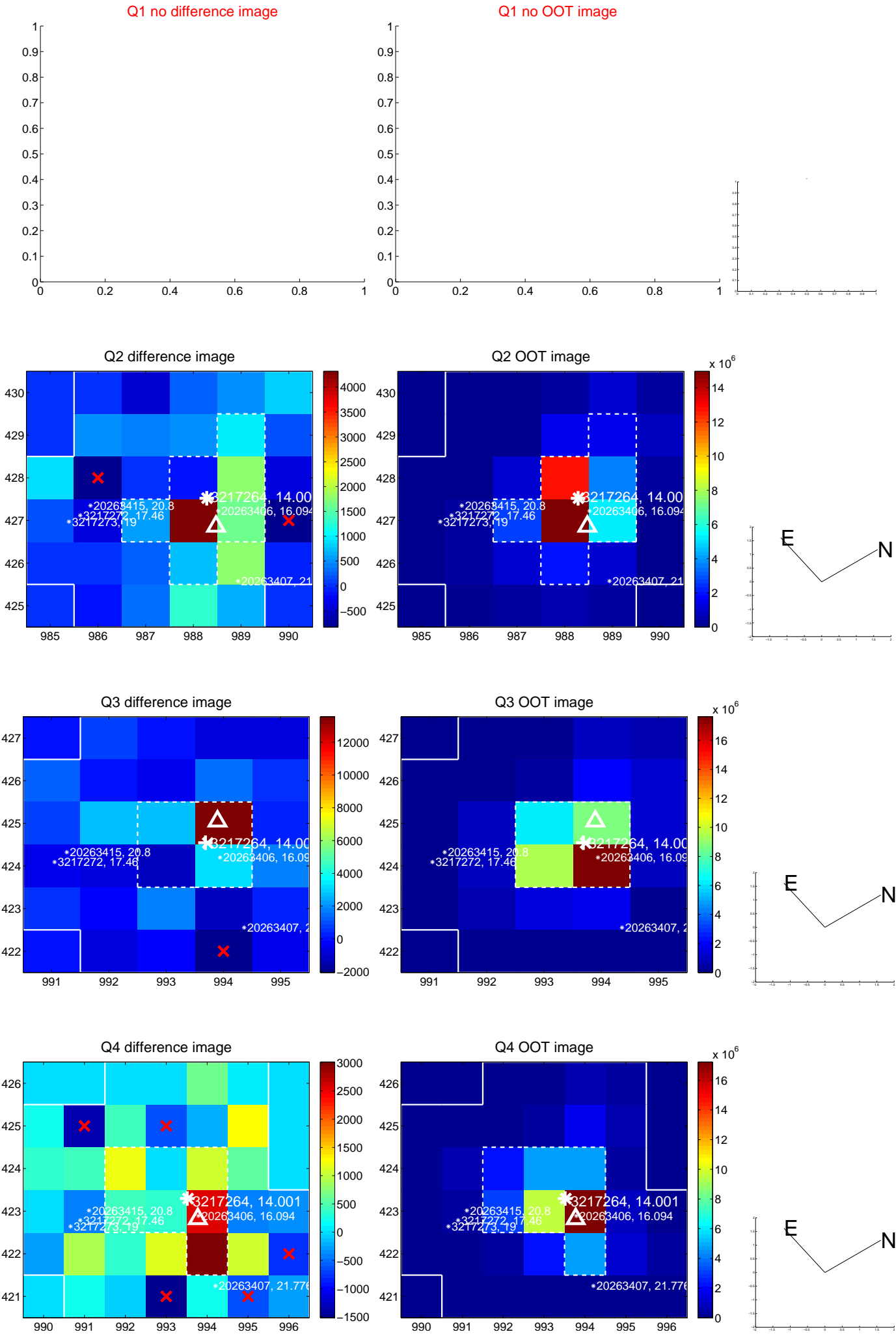


offset from photometric centroids

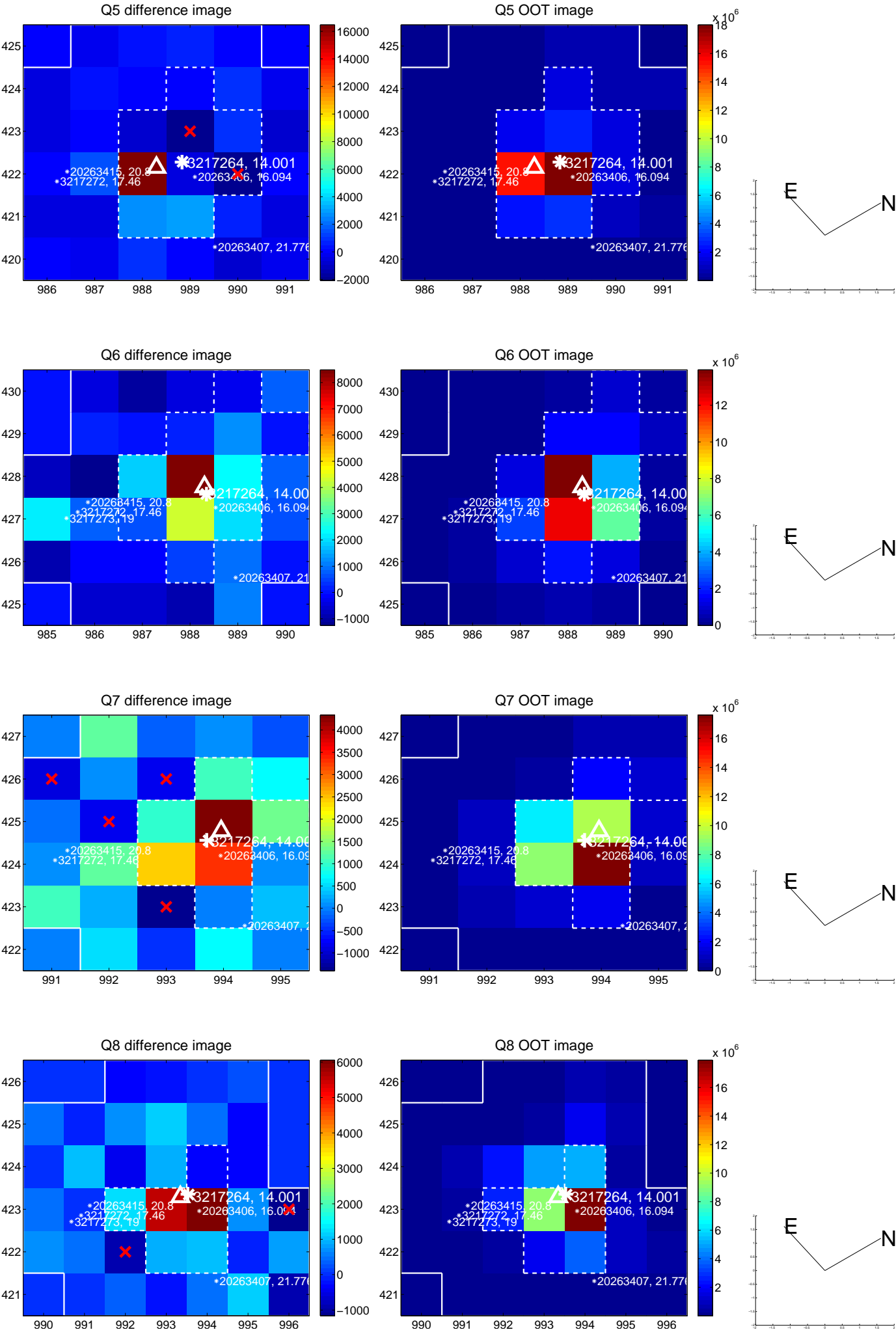


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

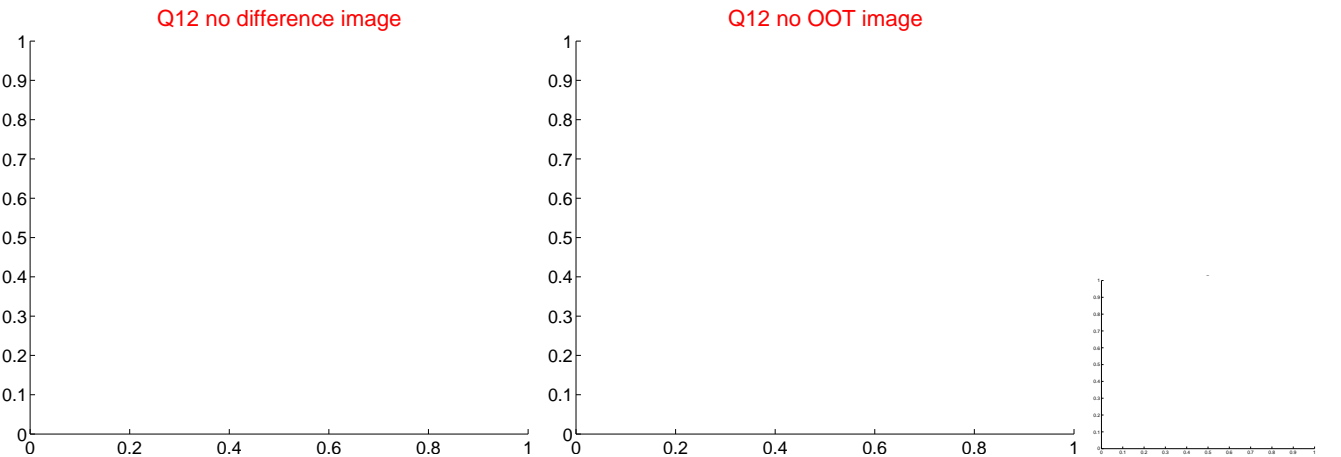
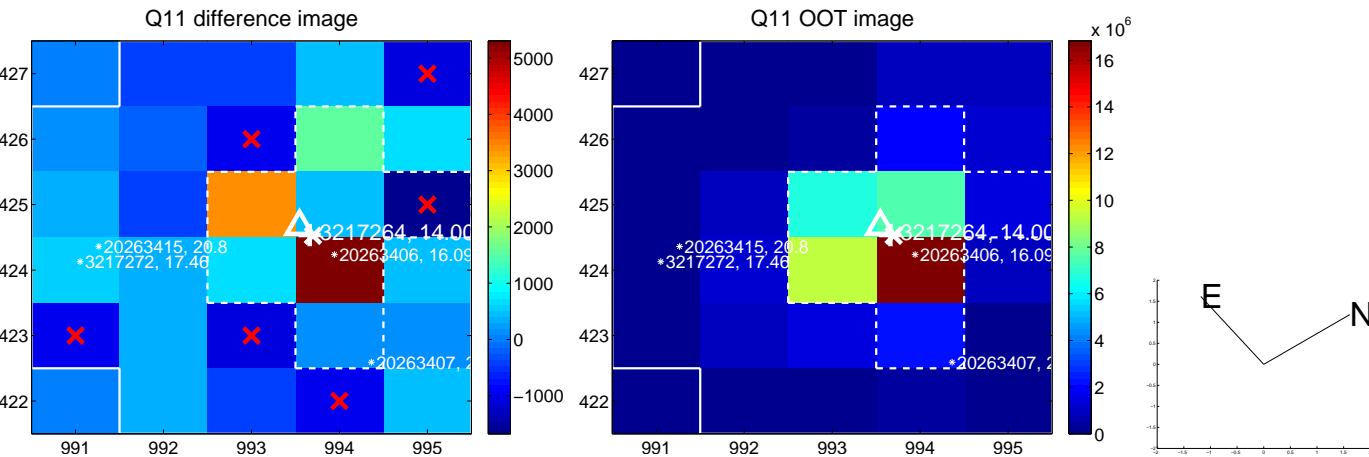
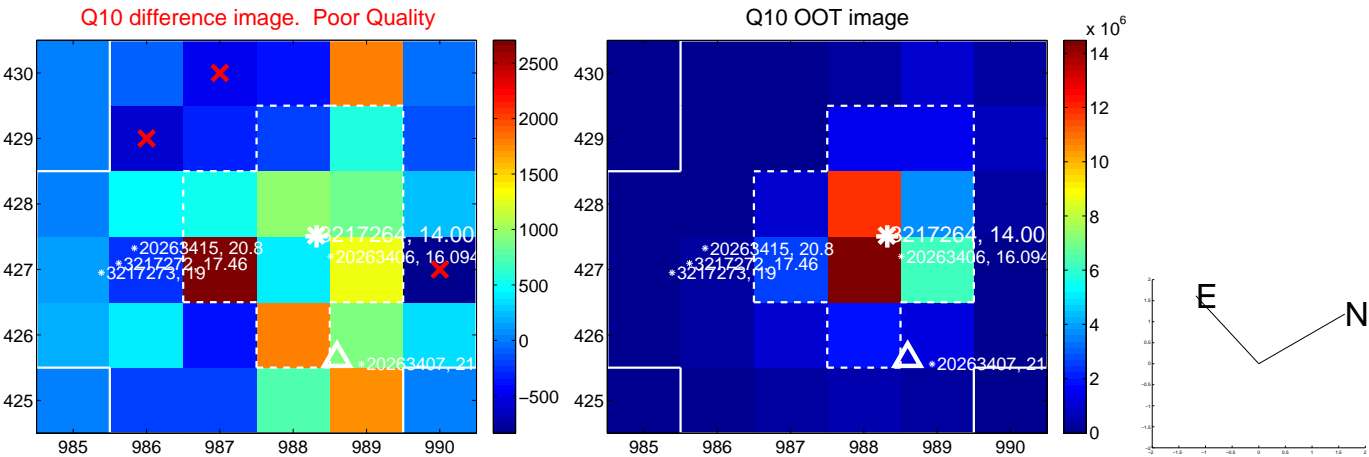
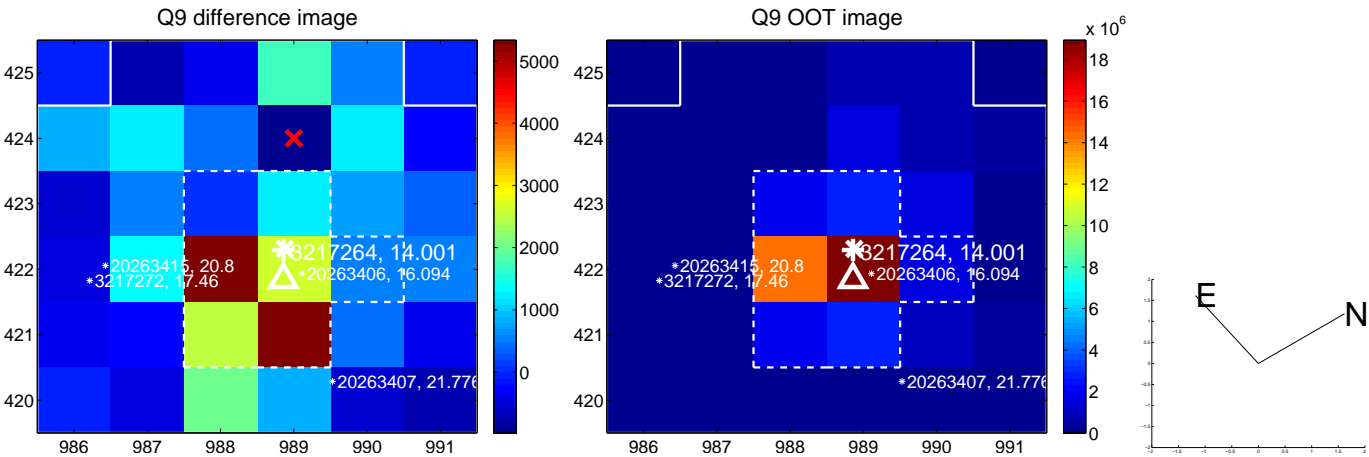
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



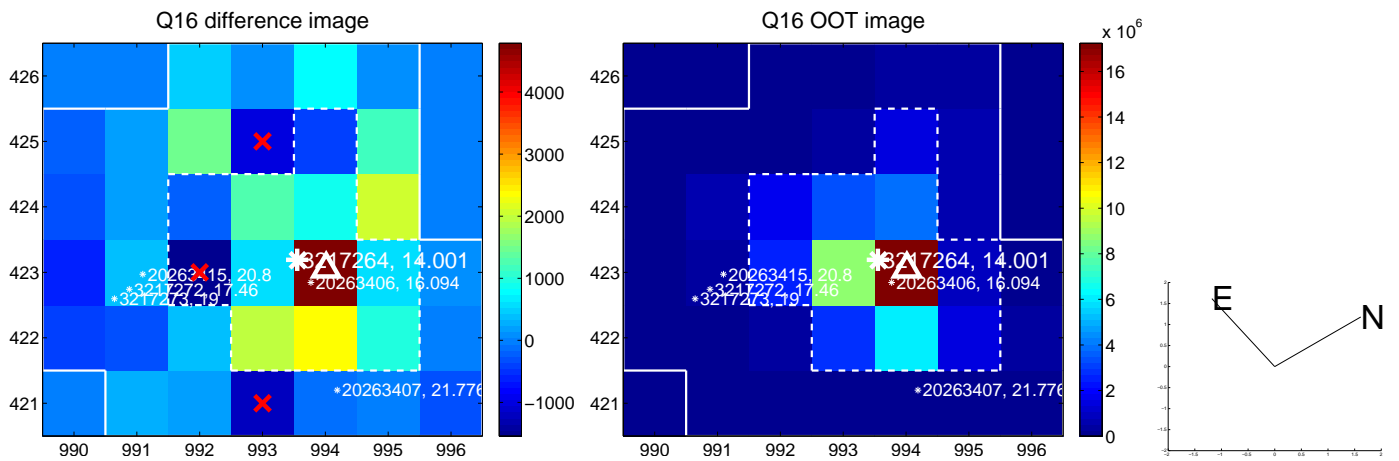
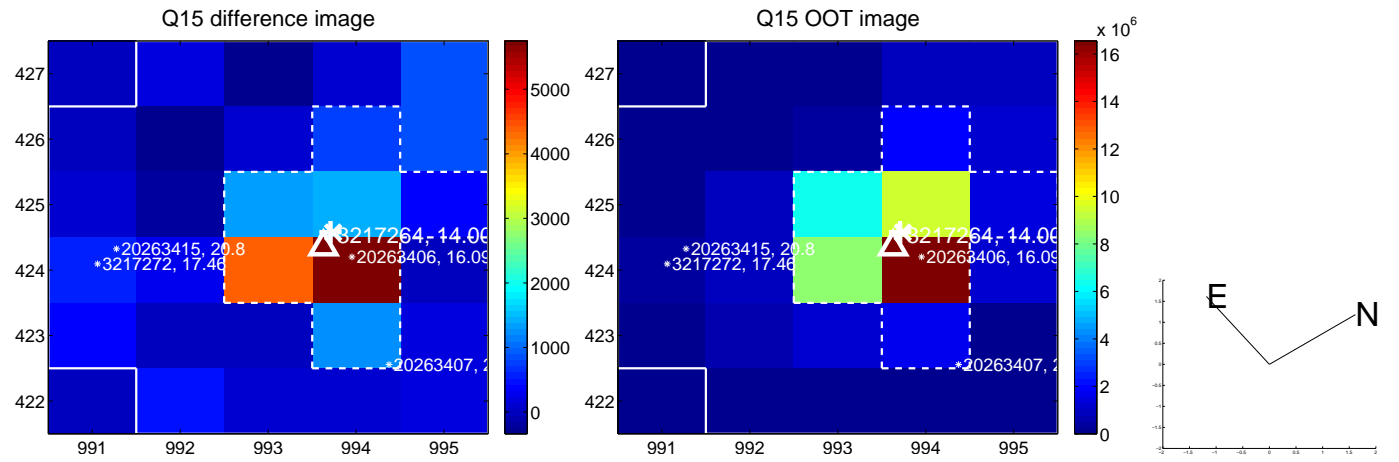
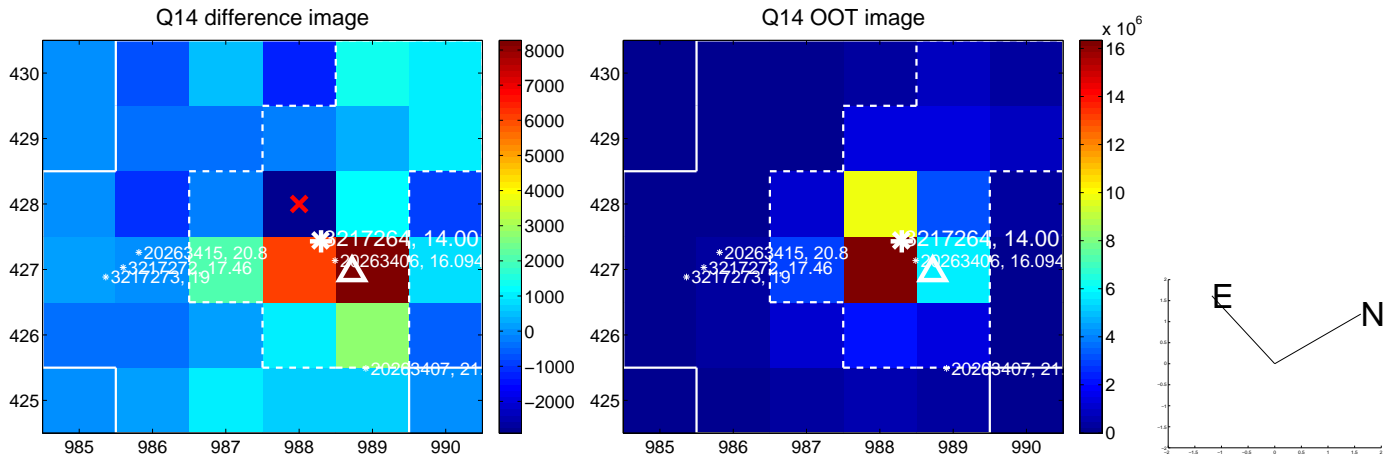
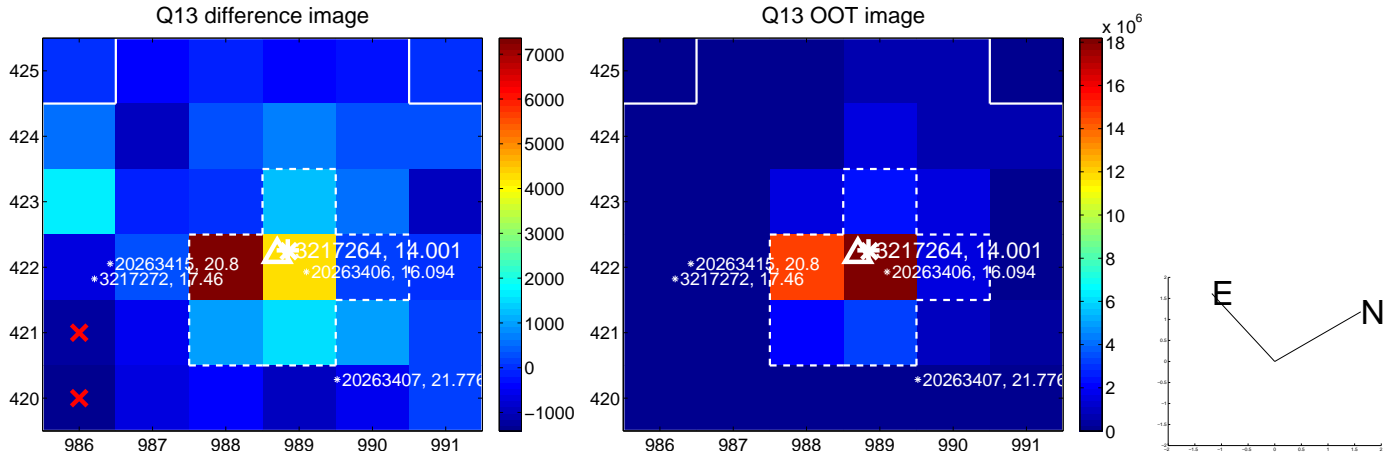
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



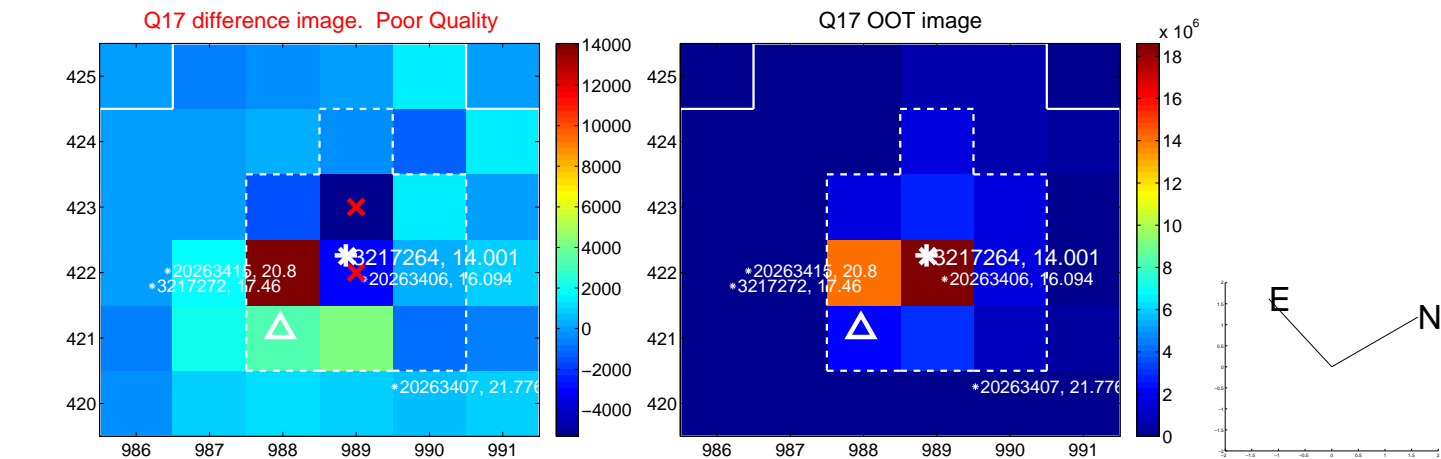
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



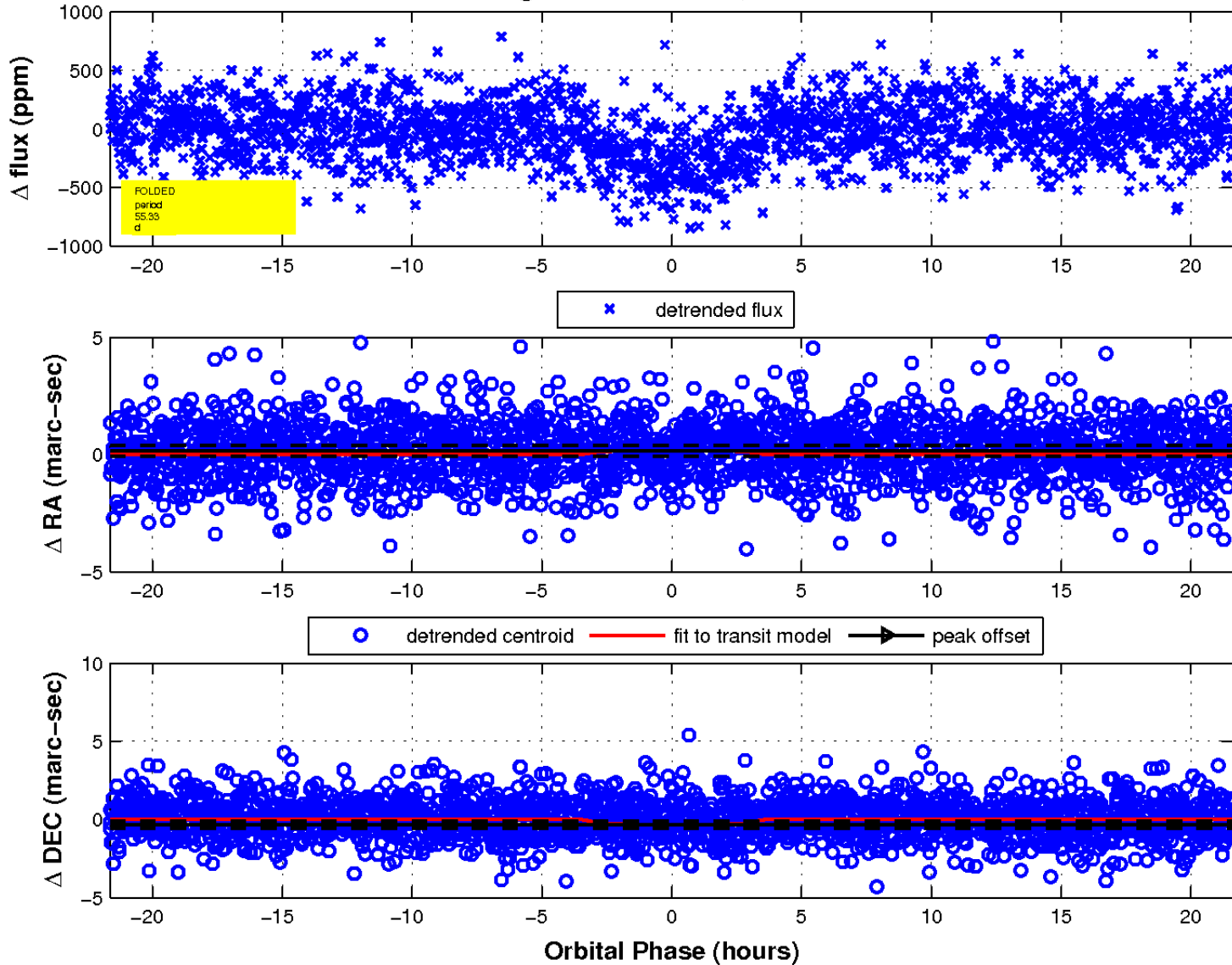
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

